THE CHEMIST AND DRUGGIST

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All Advertisements intended for insertion in the current Month must be sent to THE PUBLISHER of THE CHEMIST AND DRUGGIST on or before the 12th, except Employers and Assistants' Advertisements, which can be received up to 10 a.m. on the morning previous to publication.

OUR COUNTRY AND COLONIAL SUBSCRIBERS are requested to furnish any trade gossip that they may consider interesting.

Subscribers are requested to observe that, for the future, the receipt of THE CHEMIST AND DRUGGIST in a *Green Wrapper* indicates that with that number the term of subscription has expired, and that no further numbers will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our Subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order without an exact system like this.

Editorial Notes.

WE have discovered a conspiracy against retail chemists and druggists, which strikes us as worthy of very prominent exposure. Our information is somewhat meagre, but the facts we give are perfectly reliable. Certain leech-importers in London, not making their fortunes fast enough, have come to the conclusion that this state of things might be much improved, for them at least, by simply choking competition. Secret negotiations were carried on, and most, if not all, of those engaged in the business in London were communicated with, and much unanimity was expressed. A strong hope was entertained that all the members of the craft would eventually join this precious fraternity, and a solemn league and covenant was decided upon, whereby it would be agreed to fix a minimum price for leeches considerably higher than the normal quotations. It is right to explain here, however, that this has not yet come into operation, and that, therefore, the present high price for leeches is not to be taken as an evidence of the scheme we are describing. The Franco-Prussian war is the immediate disturbing influence, but the opportunity (which an old proverb tells us, is often responsible for a deterioration of integrity) was by this means created, of which our keen commercial friends saw advantage might be taken. We have put our information into a connected narrative, but this much is certain. On Tuesday last a meeting of these leech gentlemen was held to consider the matter, with what result, we are not in a position to inform our readers. But we can give them a sign whereby they will be able to judge of the success of the proposal, or otherwise. By another proviso it was to be enacted that advertising on the part of any of the members was to be tabooed, a calamity which would fall directly on ourselves, but which we trust we should bear with dignity and resignation. We fancy our columns will be rather closely scanned for leech advertisements for some time to come. We are not quite sure who is the Solomon to whom we should give the credit of originating this smart idea, but his sublime disregard of the business habits of the nineteenth century suggests that he must be a kind of commercial Rip Van Winkle, who dozed off in a pre-competitive era. We have now to remind him that during his slumber a journal has been established, one of whose objects is the protection of trade interests.

WHEN Mr. Ince undertook to collect a hundred old books on pharmacy, and report upon them at the Liverpool Conference, we almost doubt whether he had carefully considered the amount of labour in which he thereby involved himself. The collection of the books, we apprehend, was the easiest part of the task; the selection of them required much skill and thought; while the dissection of many of them by himself, and the direction and connection of the reflections of other authors must have occupied a considerable section of his time and energy during the past few months. But Mr. Ince is not a man to be daunted by difficulties, nor one who finds his happiness in idle or selfish indulgence. The hundred pages of the "Year Book of Pharmacy," which will contain the reviews of this "Century," will be one of the most interesting portions of that annual; and not only this, we venture to affirm that the standard of pharmaceutical literature has been applied to them in a skilful, honest, and accurate method. Perfection is unattainable. But the hundred old books at Liverpool seemed to give in a wonderfully graphic manner a history of the rise and progress of pharmacy during almost three centuries; and we doubt whether a much larger volume could have been so useful in this respect to an intelligent student as the reviews to which we are alluding. Mr. Ince's paper on the subject read at the Conference, was necessarily but a brief abstract of his work. The reviews have been written by himself, and by Messrs. J. Collins, D. Hanbury. A. F. Haseldon, F. T. Marzials, J. Moss, R. Reynolds, and W. A. Tilden. We have reproduced one or two of the notices on another page, from proof sheets, which we have been courteously permitted to read; and we promise our readers that in so doing we have not by any means picked out all the plums. Among the books exhibited were some that possessed more than a pharmaceutical interest, especially one, contributed by Mr. Hanbury, entitled "Hieronymus Brunschwyg on the Art of Distillation." This was in German, and was published at Strasburgh in 1515. It contains many most remarkable plates, grotesque in the extreme; and a large number of marginal notes, in the handwriting of Philip Melancthon, in whose possession it had once been. Another book of peculiar interest was a copy of John Wesley's "Primitive Physick," a book, perhaps, unknown to many otherwise well-informed Methodists. Wesley's medical talents, we gather, from the appreciative review by Mr. Ince, were hardly equal to his theological attainments. Many other interesting facts might be culled from this *brochure;* but we must draw the line somewhere, and as the book will be ready soon, it is all the less required of us to do more than draw attention to it. Its contents will be found in the old phrase "both entertaining and instructive."

QUACK medicines, like Macbeth, bear a charmed life. Serious argument, ridicule, the inexorable logic of repeated failures and exposures, have no effect on their consumption, so long as the proprietors supply the "go-power" by untiring advertising. For this reason, we think most of them will survive the following smart attack made on them by the *San Francisco News Letter.* Our contemporary writes:—"We have a suggestion to make to the medicine men, which we

will preface by the statement that for a considerable part of the nineteenth century we have been taking their prescriptions with an unquestioning and lamb-like compliance that entitles us to a respectful hearing in return. The principal affliction under which our healthless community writhes like a colicky worm is "ye Nostrum." Why should it longer writhe? Granted that the community is an ass, which gets itself poisoned by cropping a noxious weed in preference to a healing herb. Asses, on account of their relationship to ourselves, must be tenderly looked after and firmly restrained. There are an infinite variety of ways to restrain them, all more or less ineffectual. Probably the one that is least so is the crunching of their heads with the back of an axe, or some process that shall give a similar result. And this is the method we would employ in dealing with their fellow-brutes who stuff their systems with patent medicines and feed the same to their females and young. We would mash their heads. But inasmuch as, under our mawkish civilization, this is quite impossible to accomplish in any kind of peace, there is no choice but to be content with a method less satisfactory to the feelings, but equally efficacious, so far as concerns final result. Our leading physicians of the McNulty-Maxwell stripe should combine in an anti-nostrum society. They might employ an experienced chemist whose duty it should be to carefully analyse every patent medicine in the market, and publish its composition to the world; with some judicious remarks—adapted to the meanest capacity extant—as to the probable or observed effect of taking it into the stomach. There is little doubt, such is the influence of the mind upon the body, that a great multitude of the unlucky wights who have been dosing themselves with these villainous drugs would, upon learning what they have got inside them, keel over and die. This would be a positive blessing. It would materially decrease the vote at primary elections, and would render anti-coolie conventions impossible. It would probably not interfere more than temporarily with the profits of apothecaries, for people would take more medicine of the proper kind. By the same token it would increase the fees of the regular practitioners. Upon this cogent argument we rest our case."

Under the head of "Chemistry and Pharmacy," will be found the description of one more adulteration practised on saffron, that most long-suffering article of the Materia Medica. The fraud shows an amount of ingenuity which might well have been turned to better account.

A correspondent of the *Homœopathic World* has sent to the editor the copy of a bill for medicines, which he alleges was delivered to a lady in Leicestershire for fourteen months' attendance, etc. It is as follows:—

3 applications to the throat, 2s. 6d. each.
Examination of the chest and attendance, 7s. 6d.
Exploration of chest, 5s.
5 blisters, 1s. 6d. each.
19 plasters, 1s. 6d. each.
20 single boxes of ointment, 1s. 6d. each; and
5 double do., 2s. 6d. each.
7 pieces of lint, 1s. each piece; and
7 ditto at 1s. 6d. each.
398 bottles of mixture, at 2s. 6d. per bottle.
62 do. of cough do., at 2s. 6d. do.
51 do. of tonic do., at 2s. 6d. do.
14 do. of chalk do., at 2s. 6d. do.
48 do. of cod-liver oil, at 2s. 6d. do.
26 do. of embrocation, at 2s. 6d. do.
131 boxes of pills, at 1s. 6d. per box.
272 draughts, at 1s. 6d. each.
7 evening visits, at 2s. 6d. each.

Total amount of bill, £113 10s. 0d. Total number of bottles of medicine, 870!!! It is needless to add that the patient died.

We take this opportunity of congratulating Mr. Dakin, the wholesale druggist, on his election to the office of Lord Mayor of London. Many of our readers have pleasant recollections of his uniformly courteous demeanour as President of the United Society of Chemists and Druggists.

Some of the Liverpool chemists thought that conscientious pharmacy had been carried a little too far, when their customers visited them on the morning following the Citrate of Magnesia discussion, and showed them a copy of the *Post* or *Mercury* containing an exposure of their practices. If, said a logical public, if we cannot trust you in Citrate of Magnesia, how can we believe the rest of your imposing labels? There is no getting out of the dilemma. There was no deliberate intention, in the first place, to call the thing by its wrong name, but the habit has grown on us, and the public, by their eager adoption of the illegitimate chemical, has rivetted the title. We can offer neither advice nor consolation. We can only moralise in the words of the poet:

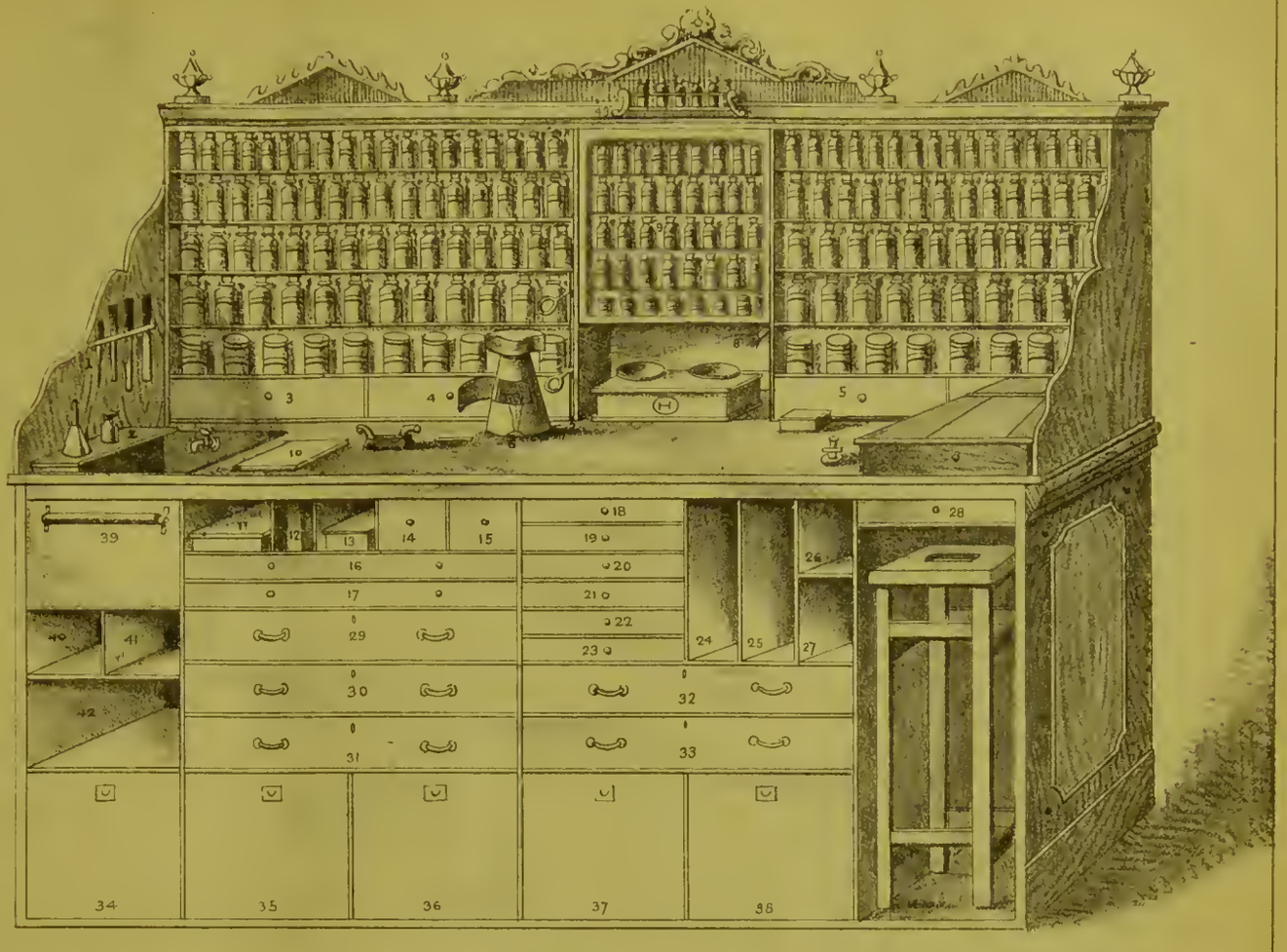
"Oh, what a tangled web we weave
When first we practise to deceive!"

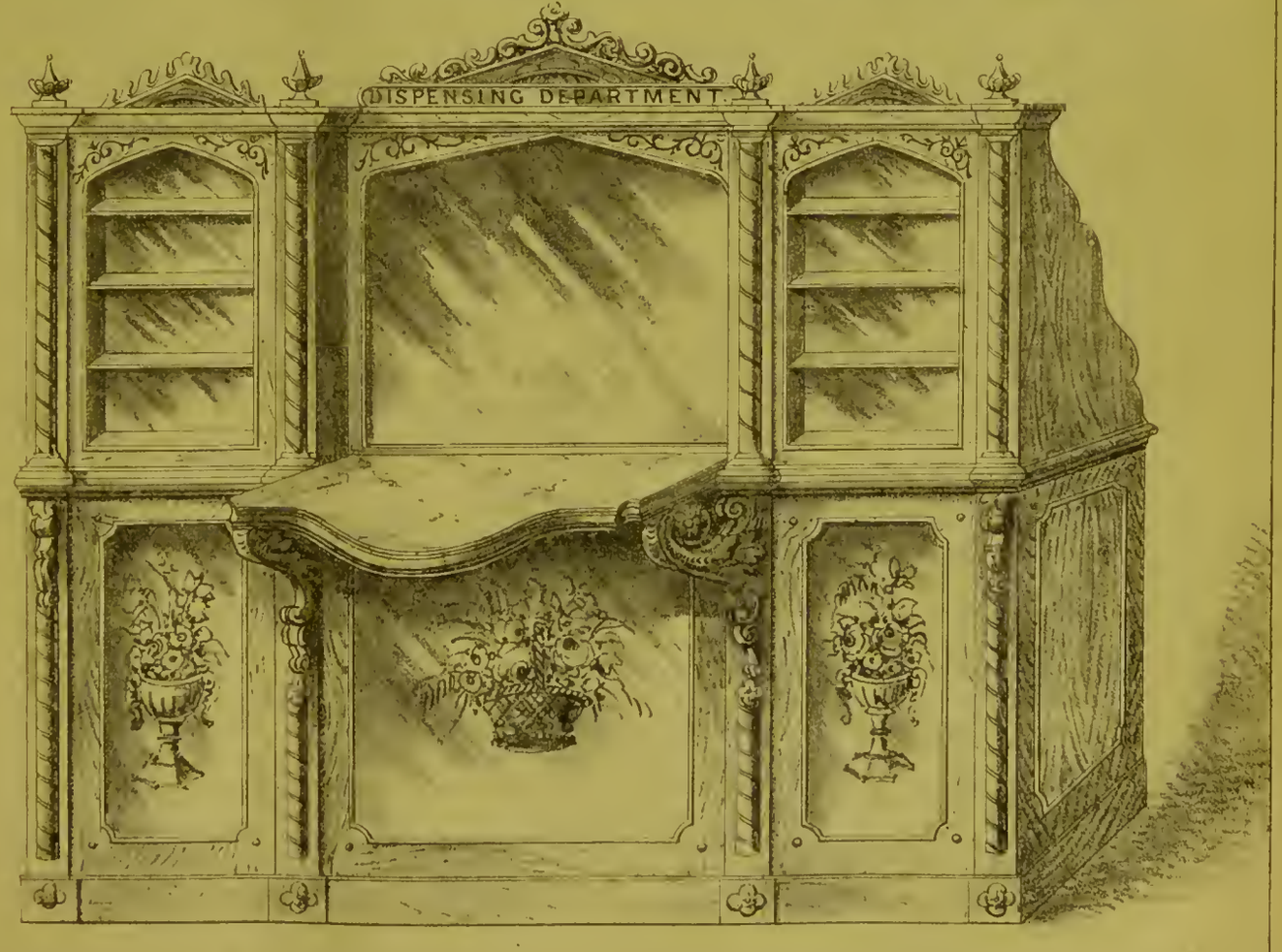
Our arrangements for the publication of the Chemists and Druggists' Almanac and Diary for 1871 are now completed, and we hope to have the book ready for delivery in November. The chief feature of the new issue will be a carefully planned diary, and in order to make this useful to every one, we have decided to increase the size of the pages. We presume all of our readers keep a diary, if not they ought to do so, and the one which we shall publish will, we think, satisfy them in every respect. The letterpress will be by no means neglected, as will be judged when we say that Dr. Attfield, Messrs. Ince, Tilden, and Rich, have promised to contribute to it. For the past two years this annual has been a great success, and certainly the addition of an excellent diary will add to its value. We hope chemists will send their orders in at once, as it will greatly facilitate publishing arrangements, and those who wish to avail themselves of its advertising pages are reminded that the space is limited, and the time is short, the date fixed for closing up being October 31st.

We shall, next month, publish a most life-like portrait of the ever-popular Mr. Henry Deane, with a sketch of his life, of which we shall be able to give most interesting particulars.

G. F. SCHACHT.

THE thought struck us, as we listened to, and still more as we read the discourse delivered at the opening of the Session, how great had been the advance in the culture of the modern pharmacist. Here are words fitly spoken, and how good they are. The address has been perused and criticised by all ranks of pharmacy, and therefore to comment on its various passages in detail would be superfluous. Let us at once bring before our younger readers the beauty of its composition; let us assure them that these sentences, so often falling into natural cadence, and not unfrequently shaping themselves into music, are not the result of some





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happy moment of inspiration, nor of exceptional personal facility of expression, but owe their origin, as we believe most successful endeavour must, to earnest and continuous work.

From whatever source these graceful paragraphs have sprung, we congratulate the lecturer and ourselves on their production. The writer's task is difficult; he has to give the kaleidoscope one more turn, and say that study is a good thing, that idleness will come to grief, and that success waits upon industry—moreover, the gentleman who inaugurated these admonitions has rendered competition hopeless. Mr. Schacht steered clear, spoke as little like a tract as possible, and studiously avoided bringing down the house. It seems that he was less instructed than his audience, for he was unable to explain why he had been selected as the student's mentor; nor was he accurate in his facts, for he observed that he was an unknown provincial. He stood there, let us inform him, as the exponent and representative of a courageous effort to extend educational advantages to universal Pharmacy. Therefore, with no abated sympathy for his London audience, and with heartfelt rejoicing over their exceptional position, it has been his aim to widen the charmed circle and let the country share. The novelty of the address was the recommendation of the study of mathematics, method being an essential quality for the cultivation of that which is called mind. Vain would it be to call its influence in question; but whether, and how far, this abstract pursuit appeals to the general mind, is a matter about which, perhaps, we may hear hereafter. Mr. Schacht's conclusion is beyond praise; he warms up to his subject and becomes eloquent:—

"Every man lives a double life, or rather his life has two relations—an inner life, for which in this world he is responsible to his conscience alone, and an *outer* life, which relates him to his fellow-creatures, and in which occur his thousand opportunities of influence for weal or woe. In the one he may aspire so high as to become the temple of the Holy Spirit; in the other, to be as a light set upon a hill, to shine for all men's benefit. As with the individual, so with societies of men in their corporate capacities. This Pharmaceutical Society has a life to live before the world which imposes obligations as constraining as those which relate it to its own members; and the proceedings of to-night constitute one of the logitimate occasions for its public confession of faith."

But though our friend from Clifton commenced with erroneous statements, he redeems his character when he explains the meaning of the ceremony at which they had just assisted. He felt persuaded that the leaders of the Society welcomed, right gladly, every student. "They are glad, I will be bold to say, to greet *me*.

British Pharmaceutical Conference.

LIVERPOOL, SEPTEMBER, 1870.

SPEECH is silver, silence is golden, says the proverb, and a golden-silver message was sent by Liverpool, then entertaining her own guests, to those good pharmacists in America, who were doing precisely the same thing. The telegraph turned after-dinner orator; and though not a word spake it, this is what it said:—

"From the President of the British Pharmaceutical Conference, at Liverpool, to the President of the American Pharmaceutical Association, at Baltimore:—The most successful meeting ever held sends hearty fraternal greetings." Did it tell lies? There is a white variety, as there are pious frauds. Firstly, there was the President, William Walter Stoddart, who had *then* to congratulate the society on the addition of 900 members. This gentleman, in his geological wanderings, has struck on the vein of industry: none will be surprised should he hit on genius. Nothing can fairly convey an idea of the mixed urbanity and skill which he displayed, while superintending either the business or the science of the Conference. The lecture-room at the Royal Institution, was most convenient. An excellent report on the Purity of the Yellow Bees-wax of Trade, was presented by Edward Davies. It was much too short, and is, we understand, to be resumed. The Cultivation of the Opium Poppy in Australia, written by J. W. Hood, Melbourne, and communicated by Mr. Morson, was extremely interesting. Then followed a hot discussion respecting Citrate of Magnesia—its title was severely called in question, by one whose contribution to the Exhibition of Pharmaceutical Objects, was beyond praise. Arrangement, and printing, admirable—selection, perfect. We object, knowing imminent difficulties, to the introduction of trade, or rather to shop, questions in our Conference. It is delicate ground, on which we should prefer our members not to tread. Purely trade questions are redolent of gunpowder, they do not come within our province. Shall we be henceforth virtuous, and call *lemon and kali* "saccharated, effervescing, carbonated, tartrate of soda, *cum limone?*" or shall we risk seidlitz, under the name of hydrated, effervescing, carbonated, alkaline tartrate?" *Dulce est desipere in loco.* Trade is not bound by the severe rules of abstract chemistry; nor are we unmindful that the proprietress of a deservedly frequented restaurant, was alarmed when she discovered that the Norwich soda water was not accurately titrated.

The same night of the meeting there was a dinner, toasts, and speeches; and on Wednesday morning a short selection from a paper on "A Century of Old Books." Sincere regret was felt that Mr. Schacht was unable to expound his views on State Education, and, consequently, to assist in the "Discussion on Facilities for Pharmaceutical Education in the Provinces." Mr. Sandford introduced the question, and, as far as our judgment goes, it was calmly and well discussed. We missed, however, our Clifton friend, who so forcibly would have expressed his meaning; nor can we afford to lose a personal illustration of that enviable command of clear and graceful exposition which has delighted us so often.

Had Mr. Schacht been at Colquitt-street, we imagine he would have said something like the following:—

"There are certain scientific subjects which have, as it were, an Imperial interest; let us take one. Many classes want a knowledge of chemistry. It is good for the whole State that chemistry should be well and extensively taught. To say the least, barristers, medicals, agriculturists, manufacturers, dealers, miners, and mechanics want to learn chemistry, and to learn it well. Teaching chemistry is not like teaching history or moral philosophy, where all is done by the teacher's brain and tongue. Chemical lectures to be good must be expensive to the lecturer, and if half a dozen courses are going on in a moderate community, one got up by the medicals, another by the pharmacists, a third by the farmers, a fourth by the artizans, and so on, the probabilities are they will all be very imperfect. How much better that the Government should aim to encourage the establishment of *one first-class school of chemistry* for every district capable of responding to the invitation to utilise its instruction, and that all these sections of the community should be equally eligible to participate in its advantages. The quality of the instruction would undoubtedly be better, and the science

would have a chance of being taught in localities otherwise incapable of raising necessary funds. I am speaking of general subjects only; special and technical subjects must be taught by the sections wanting them. Thus, I should look, as regards ourselves, to the Government schools for chemistry and botany, but to our own efforts for materia medica and pharmacy. This brings me to the question, what do local schools of pharmacy want from the parent Society? In my opinion, money to pay a good proportion of the inevitable expenses of teaching materia medica and pharmacy. These must be expensive, because they are special. No one outside our body would ever enter the lecture room. Moreover, for their illustration a museum is required; a room of suitable size, and a paid custodian. My own town of Clifton is a fair example of what may be expected in good average centres. We have about sixty members, and may calculate upon thirty or forty associates. Their subscriptions amount to nearly £40 per annum. To keep life in the concern we have to get up some general attraction once a month, in the form of a popular lecture, which though not paid for directly, costs money for room, gas, and postage; we pay the lecturers on chemistry and botany a lump sum each, and charge a reduced fee to our pupils who attend. This results in a charge upon our friends. Other expenses, small in themselves, mount up, and I think our balance at the end of our first year will be about £7. Now, we have no museum, and no library, nor have we, as yet, any room of our own. Our Philosophical Institution lends us their house when wanted, and we make them a donation of £5. What we want is something to help us to establish a decent museum and library, and something per annum to pay for the expenses of lectures on materia medica and pharmacy. We should be quite willing to raise a local fund towards the former purpose, but I do not see how we can hope to increase our annual income. I tell you our own case, and I dare say every other local society would have something different to present. Hence, I fancy the Pharmaceutical Society should (if they resolve to help) invite each existing local society to make known its wants. They can then determine whether the demand be fair, and whether they can comply with the request."

Here, for an instant, let us digress, to note the courageous stand made by Mr. Stoddart in defence of a well-grounded English education; he contended for the paramount importance of reading, writing, and arithmetic: he objected to cramming little boys and girls with science, when they might be more usefully employed in strokes and pothooks. Finally, he praised the character of our own preliminary examination, and was not wiser than the wisdom of the psalmist, who describes the blessed man as a tree, planted by the rivers of water, that bringeth forth his fruit *in his season*.

But the great education problem waits unsolved: thirst for knowledge is one thing, power of acquiring it, another. The angel comes every day to trouble the waters—eternally something new—and yet the provinces, like the impotent man of old, sit by the pool side, for there is no one to put them in. All honour to those who so nobly have devoted themselves to this work, as useful as its claims are imperative.

We have lingered here so long that we must begin to say farewell to Liverpool. Not, however, without paying our respects to Mr. Stanford. This gentleman is a poor representative of the starvation, alleged to be chronic, at St. Kilda. He escaped from that desolate shore, with his life and a bird called the Fulmar, in company of which he sternly pursued his *scent*imental journey. It smells (the bird not the journey, possibly both to some extent) of fish oil, and looks like a young albatross. The hardy island catchers, with the skill of an acrobat, and the daring of the north, hanging suspended over perilous steeps, snare the Fulmar by a noose, force it to disgorge its oil, and seize it as their prize. This specimen of ornithology appears to do as much as a maid of all-work at a lodging house. It yields the oil as mentioned, its feathers stuff beds, its flesh is eaten, and its skin is dried, and when nicely mounted, it forms an object of interest for our museum, and a capital paper for our friend to read before the British Pharmaceutical Conference. We recommend it as an article of children's diet, as they might have their cod-liver oil and dinner simultaneously.

The brightest days must end. We leave to others to tell of Widnes and Runcorn, and of the tea at Halton Castle, where Professor Attfield made excellent fun, in which he was ably seconded by John Mackay. Comes the inevitable cab, and the landlady with many inquiries respecting past comfort. Once more we insert our umbrella into that shiney case which has hitherto enjoyed sinecure—so we leave, and the roar and bustle of London grates upon our ear. Yet, as the grand old city of Paris, which is daily relinquishing its luxury and becoming France, has its stores to resist the siege, so we have brought home with us materials for hope, energy, and encouragement in the prosecution of our future labours. The memory of unremitting kindness, the ungrudged hospitality and attention of a late President of our Society, and last, not least, the recollection of a song, given as we have never before heard in private, which chronicled the period

> "When we were boys, merry merry boys,
> When we were boys together."

JOSEPH INCE.

THE seventh annual meeting of the British Pharmaceutical Conference was held at Liverpool, on the 13th and 14th of September, under the presidency of Mr. W. W. Stoddart, F.C.S., F.G.S. The first business was the election of 920 new members, the result of an energetic system of canvassing the whole trade. The number of members is now about 1,500. Professor Attfield read the

REPORT OF THE EXECUTIVE COMMITTEE.

It was announced that the year-book would be published not later than December 1st; that Mr. John Cargill Brough had been elected editor; and that the Committee had contracted with Messrs. Butler and Tanner, of Frome, to print and bind the work, and with Messrs. Churchill and Sons, of London, to publish it. The following letter received from Mr. Hills, soon after the Exeter meeting, was read:—

"Herewith I have much pleasure in redeeming my promise made at Exeter, and enclose a cheque for fifty guineas. Twenty-five guineas I give in memory of my good friend Jacob Bell, who, I feel, would have been pleased with what the British Pharmaceutical Conference has done and is doing, and twenty-five guineas in my own name. I give the money to the Council of the Conference to do what they, in their wisdom, think will best promote a good feeling amongst pharmaceutists, and assist the education and well-being of assistants and apprentices. I give it without conditions. You will remember I suggested that ten guineas' worth of books should be presented to the pharmaceutical chemists and chemists and druggists of the cities and towns in which the Members of the Conference may meet, as an additiou to, or nucleus for, the formation of a library, where the assistants or apprentices may assemble for the purposes of study and mutual improvement. I think the Conference is a great success, and will do much good. The generous exhibition of good feeling of the chemists of Exeter and Torquay is worthy of imitation everywhere, London not excepted. The 19th and 20th of August will be red-letter days in my pharmaceutical calendar and green spots in my pharmaceutical life. The meetings bring forth kind sentiments and friendly feelings between men interested in the same business and obliterate imaginary jealousies. With best wishes for the success of the British Pharmaceutical Conference, believe me,

"Always yours faithfully,
"THOMAS HYDE HILLS.

"P.S.—The five artists' proofs of my good friend Jacob Bell which I promised to your Committee, I will have framed, to save the Conference trouble and expense."

It was added, that after sufficient inquiries, ten guineas' worth of scientific books had been voted to the Library of the Exeter Branch Pharmaceutical Society. In conclusion, the report referred to the untiring efforts of the Liverpool Local Committee to ensure the success of the meeting and the enjoyment of the visitors. After a little more formal business, including the election as honorary members of several eminent foreigners, the President delivered the following:—

INTRODUCTORY ADDRESS.

GENTLEMEN,—It has now become an annual custom to commence our Conference meetings with an introductory address, the principal object of which is to briefly recall to our memories some of the most prominent observations or discoveries that have taken place during the previous year. Nor is the custom less instructive than interesting, for all who are in the habit of reading from month to month the labours of others know full well the value of such occasional reviews.

The prosperous career of the Pharmaceutical Conference is fully apparent in this our seventh meeting, which promises to fairly rival any of the former ones, both in number of visitors and interest of papers.

The number of new members is so unprecedented as to call for special notice as a great subject for congratulation. No fewer than 900 having been added to our list since the last meeting is a plain and unmistakable proof that the institution of the Society has not been in vain. Indeed, if any evidence were necessary to prove the appreciation of our annual gatherings, it would be most abundantly afforded by the good people of Liverpool, who have left nothing undone to make our visit successful, and ourselves at home.

I feel assured that it is not only the wish of your Council, but of all the members, that our various visits throughout the kingdom should be productive of good, by planting a seed or two of the tree of knowledge, which by a little careful training and judicious culture after our departure, may in after years yield the fruit of increased intelligence.

It appears to me that the fundamental idea of the Conference is the furtherance of Pharmacy proper, by directing attention to the proper means of scientific education, or judicious training, and the advancement of our status as a profession.

Nowhere in the kingdom is there a better spirit for improvement or stronger ambition for advance shown, than by the inhabitants of this part of her Majesty's dominions. I would therefore appeal to their experience whether or no the cultivation of the mind in scientific pursuits be not an exquisite source of pleasurable enjoyment and actual profit. It may be some curious reaction to be unravelled, some puzzling phenomenon to be explained, or the most profitable method of conducting an operation to be found, which, to the intelligent mind, furnishes a zest for exploration that must be felt to be properly understood.

What pleasure is there so innocent or so enthusiastic as the mutual examination of perhaps a common object under the microscope, or unfolding the nature of a substance with the subtle art of chemistry?

I do not for one moment believe that such works are only for the anchorite or the recluse; nay, a spirit of enduring and cordial fellowship is created, by the glorious relish of meeting a kindred spirit, to whom you can show a treasure, or with whom you can have an hour's chat.

In every age the pursuit of knowledge has been the theme of song and verse. The very nature of a man possessing a "mens sana in corpore sano" forces him to appreciate all that is beautiful, and fills him with an insatiable desire to discover the cause of the many wonders that are continually taking place around him.

> "Not a tree,
> A plant, or leaf, or blossom, but contain
> A folio volume. We may read, and read,
> And read again, and still find something new,—
> Something to please, and something to instruct."

That horrid, but perhaps necessary cry, *cui bono?* must sometimes be met, and surely past experience can satisfy the most mercenary spirit, and show that the so-called hobby of a philosopher, foolish as it may seem, frequently gives birth to results that must startle the most cold-hearted utilitarian.

I cannot endorse the assertion of Adam Smith that a philosopher is a person "whose trade is to do nothing and speculate in everything." Where would be our telegraph if Faraday and Oersted had not studied the properties of an electrified wire? Or the wonderful calculations of astronomy if Newton had let the fall of an apple pass by unheeded? To the student nothing should be considered too trifling or unimportant.

But it is to the improvement of our own particular profession of pharmacy that I wish to call your attention, hoping, as I do most sincerely, to enlist your interest.

We live and have our being in complete subjection to Nature's laws. How foolish, then, to remain without learning what those laws require, so that we may have them with us and not against us!

Pharmacy, of all pursuits, is the one most dependent on the proper use of these laws. The pharmaceutist must make the most he can of the numerous animal, vegetable and mineral substances with which he has to do, and to carry on his operations with the view of producing the best results. I am convinced that the most prosperous and happy of our body are those that bear these things in mind, and who look upon mental cultivation as a delight, and not as a necessary but disagreeable task.

Probably of all occupations for procuring the means or subsistence none surpasses our own in the small return for the large amount of work done. Truly the pharmaceutical motto ought to have been, "Nihil est aliud magnum quam multa minuta."

Thirty years ago the pharmaceutist was a literal tradesman, and for thirty years we lived in a theoretical anticipation of our character and status being raised to a higher standard. Our ever-to-be-remembered Jacob Bell and William Allen, with others of advanced views, steadily persevered in the attainment of this object, and hoped on in the face of strenuous opposition to see the things that we see.

Two years ago we obtained the long-wished for Pharmacy Act, but at our last meeting we had no practical experience of its working. All was in embryo. Since that time a twelvemonth has elapsed; and, though too short a time perhaps for a conclusive verdict, yet I venture to say that it has worked well, and now more than ever its expected benefits loom more decidedly in the future.

Let us always beware, however, of infusing a mercenary spirit into the conduction of our Pharmaceutical Society. Its main object is, and ever must be, the upraising of our Pharmaceutical education, and not the lowering it into a trades' union, a spirit which I am bold to say would prove its ruin.

We must not be too impatient of a little more nursing by the valued hands of the older members of the Pharmaceutical Society.

Chemistry, botany, and physics are to us only secondary in importance to a well-grounded general education.

The study of botany is peculiarly a necessity, since we derive so many of our preparations from various plants; but its demands have been so well put before you on former occasions by our esteemed Professor Bentley that I must not take up your time by dwelling on them now.

Our younger members will need no reminder from me that great changes have within the last few years taken place in chemical philosophy. Chemistry now, more than ever claims to be an exact science; and, although I fear many of us have bemoaned the change in notation and the attendant difficulty of unlearning an old system, yet the more simple explanation of puzzling organic metamorphoses will amply repay any trouble taken by the persevering student.

Nearly twenty years ago, our countryman, Professor Williamson, introduced to public notice the modern view of chemical types. Three years afterwards Gerhardt added to the Professor's water-type two others, the hydrochloric acid and ammonia.

From these views we have a more complete classification of the elements and their combinations than we ever had before. Ere many more years have elapsed, works on chemistry must be arranged on quite a different plan, especially with regard to the terms inorganic and organic.

In our older books the compounds included under these heads were supposed to be as distinct as if they belonged to the animal and mineral kingdoms. The term "organic" then denoted those compounds which were thought only producible in the bodies of plants and animals, and that their production was due to a supposed "vital force." Of course I here allude to organic and not *organised* bodies.

In later years many of these have been, and probably all will be formed by the chemical transformation of inorganic elements or molecules; as cases in point, I would mention the artificial production of alcohol, sugar, acetic acid, etc., etc.

Perhaps the best definition of an organic substance is,

that it is a carbon compound, and that carbon in chemistry is analagous to desmids and diatoms in microscopy. The latter seems to be debatable ground between the animal and vegetable kingdoms, as carbon is between inorganic and organic chemistry.

Oxalic acid was once considerod to be only found in the juices of plants. Now it has beeu prepared from purely inorganic elements. By tho decomposition of a piece of chalk we produce the well-known gas carbonic anhydride or carbonic acid. Then by passing this gas over sodium and sand we have oxalic acid, identical iu every respect with that found in the *Rumex* and *Oxalis*.

$$2CO_2 + 2K = K_2C_2O_4$$

Carbonic acid. Oxalate of potassium.

Our well-known alcohol is another instance of the artificial productiou from inorganic ingredients of what was formerly supposed to be formed only by the fermentation of starch or sugar.

By passing the vapour of that commonest of all minerals —sulphur—over the surface of red-hot charcoal, we have carbon disulphide, the disagreeable liquid so often used for dissolving india-rubber. Then, again, if we mix this with hydro-sulphuric acid gas, and pass the mixture over red-hot copper, or with carbonic oxide over iron, we may, as proved by the experiments of M. Berthelot, produce olefiant gas, or, as it is now called, ethylene (C_2H_4).

$$2\,CS_2 + 2\,H_2S + 6\,Cu = C_2H_4 + 3\,Cu_2S.$$

Carb. disulph. Hydro-sulph. acid. Ethy-lene. Cupric [sulphide.

Lastly, if we dissolve the ethylene in strong sulphuric acid, dilute with water and distil, we shall have as the result alcohol, similar in every way to that prepared by the distillation of grain—

$$C_2H_4 + H_2SO_4 + H_2O = C_2H_6O + H_2SO_4.$$

Ethylene. Sulph. acid. Alcohol. Sulph. acid.

We might, in like manner, follow the synthetical formation of acetic acid from the same inorganic materials, carbon and sulphur.

The vegetable alkaloids, it is true, have not yet been artificially produced; but so great an advance is being made in the formation of organic compounds by artificial means, that I think it is not too chimerical an idea to expect a pharmaceutical solution of the philosopher's stone problem, and to manufacture quinia and morphia on the large scale. We should then be entirely independent of the *Cinchonaceæ* and *Papaveraceæ*, on which we now entirely rely for these invaluable medicines.

In the January number of the *Journal de Pharmacie et de Chimie* is an article by M. Bourgoin on the electrolysis of the vegetable alkaloids,—an interesting subject that has not hitherto received the attention it deserves.

It has for some time been known that the salts of vegetable alkaloids, when subjected to galvanic action, obey the usual law of metallic bases and acids, for the alkaloid appears at the negative and the acid at the positive pole.

The author states that the sulphates of atropia, brucia, strychnia, codeia, and quinia, when acted upon by the galvanic current, behave exactly like ammonium sulphate—

$$NH_4SO_4 = SO_4 + NH_4.$$
$$+ \quad -$$

But, more than this, he goes on to say, that when an *acid* solution of either alkaloid was used, and the conductibility of tho liquid thereby rendered more perfect, the electrolytic action was much more violent. The solution became coloured round the positive electrode, and evolved oxygen, carbonic acid and carbonic oxide gases.

The most remarkable result of the experiment was that, in each case, *the colour produced was identical with that seen when the alkaloid was acted upon by strong nitric acid.* Thus, atropia and strychnia gave a yellow, brucia a blood-red, and codeia an orange colour.

This effect was the result of true oxidation, and not from the formation of nitric acid.

The experiment appears to strengthen the idea of Liebig, that the nitrogenous alkaloids are substitution compounds containing amidogen, NH_2; in other words, that they may be derivatives of ammonia, NH_3, in which one atom of hydrogen has been displaced by an organic molecule.

Having alluded to botany and chemistry, allow me to take up a little more of your time by giving an illustration of the advantage of a knowledge of natural physics, because many of the most beautiful phenomena pass under the dispenser's notice every day.

At our last meeting I had the honour of alluding to some experiments, showing the practical application of spectrum analysis to several of our fluid preparations. By means of the spectroscope many elements have since then been detected in articles of the Materia Medica, which a few years ago were considered great rarities.

On the table are the ashes of many pharmacopœial substances which contain the metals, rubidium, lithium, and strontium.

Lithium has been noticed in creta præparata, potassæ tartras acida, radix taraxaci, radix rhei, *Gentiani lutea, Atropa Belladonna, Nicotiana Tabacum, Triticum vulgare*, commercial pearlash, raisins, carbo animalis, carragheen, and kaolin.

Strontium exists in many specimens of taraxacum, creta præparata, calamine, etc.

Rubidium has been detected in syrup made from loaf sugar which most probably had been manufactured from Austrian beetroot, also in oak-bark, from trees growing on beds of lias in the neighbourhood of Bristol, and in tea, coffee, and cream of tartar.

Many samples of bismuthum album show the green line of thallium very distinctly, while oxide of zinc will sometimes indicate the presence of iridium.

By some authors it has been denied that plants absorb from the earth such metals as are not absolutely essential to their nutrition. Experiments, however, afford strong evidence to the contrary.

Mr. R. Warington (*Journ. Chem. Soc.* 1865) found in the ashes of the beech and birch ·193 per cent. of manganese. In a case of cattle poisoning at Wells Assizes, the animals were proved to have been killed by eating plants containing lead derived from the soil on which they grew. Analysis showed that grass, weeds, fungi, thistles, and shrubs, contained a poisonous quantity of lead, although totally unaffected in their growth.

The triassic marls of Cotham, near Bristol, are celebrated for an abundance of celestine, or sulphate of strontium. An examination of the ashes of plants and shrubs growing on these strata nearly always shows the presence of strontium in small quantity. I have detected this metal in *Taraxacum, Arabis Senecio, Capsella, Poa, Senebiera*, and *Scoparium*.

In a communication to the Royal Society (*Proc. Roy. Soc.* 18, 546) Mr Huggins says he has found traces of lime in every specimen of magnesia he has examined, even in what was sold as pure magnesium oxide and magnesium chloride.

When magnesium oxide was examined, the heat of the oxyhydrogen flame was necessary to bring out the calcium lines distinctly. He noticed that it was always most satisfactory to employ a minimum quantity of oxygen, for when too much was used they were not so distinctly visible. Dr. Emerson Reynolds, whose experiments were recorded in the same paper, gives the same results.

But perhaps of all the phenomena observed in pharmaceutical optics, that termed fluorescence is the most striking and beautiful. It is the ghostlike appearance which we see every time we dispense a bottle of mixture containing quinine, or syrup of red poppies. By very delicate methods of observation the singular fluorescent property may actually be seen on the white demy in which we wrap our bottles before sending them out.

It was formerly supposed to be occasioned by the reflection of light from an irregular surface, or from particles mechanically suspended in a solution, as when tincture of arnica is added to distilled water. In such mixtures the effect to the eye very much resembles fluorescence, yet is of a very different character, and may be distinguished by the rays of light being polarized, which is never the case with the true diffusion of fluorescence.

The most convenient way of viewing these phenomena is by looking at the solution under examination through a prism, or by the actinic light of burning magnesium, or by passing the spark of an induction coil through a central vacuum tube.

Fluorescence may thus be observed in many substances of the Pharmacopœia, such as guaiacum, sulphate of quinine,

Hyoscyamus, Stramonium, Curcuma, Cannabis indica, Digitalis, Lobelia, litmus, orchil, madder and *Papaver Rhœas*.

For some time the phenomena were explained by Sir J. Herschel, under the term epipolism, and afterwards by Sir D. Brewster as internal dispersion. It, however, remained for the President of the British Association, Professor Stokes, to discover the true explanation, viz. that the effects were caused by a change of refrangibility in the rays of light. The index of refraction is always *diminished*, because the length of the light wave is increased and the velocity lessened.

For instance, the invisible actinic rays which lie beyond the violet, are shown by quinine in the blue, by stramonium and curcuma in the yellow, and by chlorophyll in the red. In every case the change is towards the red end of the spectrum.

It sometimes happens that fluorescence is observed to commence in two parts of the spectrum, and would indicate that the solution under examination contained two distinct chemical compounds.

The bark of the horse-chestnut (*Æsculus Hippocastanum*) is a remarkable example of this. Its beautiful green fluorescence was formerly supposed to originate from a crystalline substance called æsculin. A more accurate series of experiments by Mr. Stokes has shown that two parts of the spectrum were simultaneously affected.

This fact aroused the professor's suspicion, which a chemical analysis afterwards proved to be well grounded. Two glucosides were produced, viz. æsculin ($C_{21}H_{24}O_{13}$), which gives a sky-blue light, and paviin ($C_{27}H_{30}O_{13}$), which gives a bluish-green. When an aqueous mixture of both these principles is submitted to examination, a light is perceived in every particular identical with that from an infusion of the original bark.

Thus it is that we often observe the different branches of natural philosophy dovetailing as it were into each other, and hastening to complete the chain of evidence required for the elucidation of some interesting problem.

The past year has been prolific in so many new and important discoveries that it becomes difficult to point out one or two only for consideration.

At our last meeting Mr. Hanbury brought before our notice a new hypnotic, the chloral hydrate. Then it was an expensive curiosity, now it is in every one's pharmacy and manufactured in enormous quantities. The general impresion is, that it will prove a very efficient remedy, especially where opiates are inadmissible. It is, however, much to be regretted, that already another preparation has been introduced into the market, which only contains 70 instead of 90 per cent. of chloral, and which is declared by Dr. Liebreich to be devoid of any therapeutic power. The chloral alcoholate, as it is called, is not so deliqueseent as the hydrate, and has a boiling point of 113·5° Cent. and a sp. gr. of 1·34, while the true hydrate boils at 97° Cent., and has a sp. gr. of 1·57.

A very simple method of detecting the imposition by the use of ammonia, has been described by Mr. Umney.

Sulpho-carbolic acid is another preparation that has recently been brought into use. It is made by combining sulphuric and carbolic acids in their molecular weights (49 to 94) at a temperature of 290° F.

That true chemical union occurs is evident from the fact that sulpho-carbolic acid gives no precipitate with chloride of barium or nitrate of lead. It produces a characteristic purple colour with perchloride or pernitrate of iron.

Many physicians affirm that it is a more powerful disinfectant than plain carbolic acid. The salts most commonly used are the sulpho-carbolates of soda and zinc.

Last year Mr. Hanbury alluded to the madder plant, a species of the *Rubiaceæ*, which, although not in our Materia Medica, yet is employed as a medicinal agent in manufacturing districts, and will, therefore, be my excuse for again alluding to it.

Its principal consumption, as you know, is for tinctorial purposes, and its value may be easily conceived when no less a sum than £1,000,000 is annually paid by us for foreign madder.

It owes its colouring matter to alizarine, which, singularly enough, does not exist in the living plant, but is produced by a kind of fermentation.

A few months ago two Germans succeeded in artificially making alizarine in quantity by the destructive distillation of coal-tar, like the well-known aniline dyes, alizarine being a product from anthracine as aniline is from benzol.

During the past twelve months our London and provincial brethren have not been idle at their evening meetings, for subjects of the highest importance have been discussed.

In London, Professor Redwood, with his usual aptitude, has given a series of most useful notes on the Pharmacopœia which have in their turn elicited practical remarks from our ever-ready friend, Dr. Attfield, and other members. Abstracts of these have appeared in the Journal, to which periodical I must also refer you for an amount of work done in the provinces, and which I think will thoroughly stand the test of criticism. Nor must I forget our transatlantic *confrères*, who have been prosecuting pharmaceutical researches with great diligence. Their "Transactions" are well worth an attentive perusal.

Since our last meeting at Exeter an International Congress of Pharmacists has been held at Vienna, and I trust we may have the pleasure of reciprocating the friendly feeling evinced on that occasion by a cordial invitation to our own shores.

In conclusion, I trust I shall be forgiven if I impress on every one present the importance of sinking petty differences of opinion, and uniting together in advancing the object for which we have met here to-day, viz., the promotion of pharmacy. We certainly have the opportunity, and we ought to take the greatest care not to let it pass unheeded or unimproved.

Government shows a disposition to help us in every way, and will give a decided preference to those who pass our examinations. For instance, they will admit no candidate for the office of Naval Dispenser until he has a satisfactory diploma from the Pharmaceutical Society. In return we are in duty bound to see that we fulfil our trust, and discharge the moral obligations that they have entrusted to our care.

We are pharmaceutists—that is, professed preparers of compounds containing the active principles of articles in an acknowledged Materia Medica, and such, in my opinion, ought to be our chief business, and the object of thoughtful study.

If my view be correct, our proper and legitimate aim ought to be attaining a knowledge of the best method of making those preparations.

I am well aware that in order to make both ends meet, a great number of our body combine a multitude of heterogeneous goods in their common stock. Nevertheless, I submit that it does not alter my idea of the desirability of a pure and simple pharmacy.

The general tendency of the medical profession of the present day is to leave to us dispensing of prescriptions which they prescribe. It is, then, plainly our duty to lose no time in rendering ourselves competent to undertake that office in the best possible manner.

At a late address Professor Huxley spoke very strongly on this point. He said, when speaking of the curriculum of study, "I would abolish Materia Medica altogether. . . . . I cannot understand the arguments for obliging a medical man to know all about drugs and where they came from. Why not make him learn about cutlery, because he uses knives?"

I quote this as a very significant expression and sign of the times. I must confess I cannot go quite so far as the Professor, for the dispenser well knows the difficulty in dispensing that often arises from a want of knowledge in the properties and peculiarities of the drugs with which the prescriber has to do.

No one, I presume, would call the medical profession a trade, because in some out-of-the-way spot in the country, and many miles from a pharmaceutist, a medical practitioner dispensed his medicine or even the prescription of another. Then why should we be prevented from raising our *status* and entering the professional ranks, because some of our brethren in the country find it necessary to amplify their already small income by the sale of more general accessories?

It must be borne in mind, too, that the present time is an anomalous one, and one that will gradually pass away, like the old apothecary.

Let us, then, accept the challenge that is now virtually

thrown at our feet, and do the best we can under the circumstances. In future years our children and successors will give us credit for, and enjoy the advantages, which will have arisen from our present endeavours in their behalf. It may be that all the thanks the founders of Pharmacy will ever obtain, will be given by them long after we have passed away.

Nevertheless, *we* should err if *we* forgot the long-tried, steady, and faithful work, done by such men as Squire, Morson, Deane, and many others whose names need only be mentioned.

Why should we not, then, unite hand in hand, and with the unselfish and free spirit of true science, proceed steadily onwards, surmounting every obstacle, and letting the motto on our banner be "Excelsior!" for

> "All the means of action,
> The shapeless masses—the materials—
> Lie everywhere around us. What we need
> Is the celestial fire to change the flint
> Into transparent crystal, bright and clear."

I cannot conclude without alluding to the great exertions of Messrs. Attfield, Brady, and Reynolds, on behalf of this Conference. I do not hesitate to say that to them we are in a great measure indebted for our successful progress. Few know the immense amount of work that has been willingly gone through by their untiring exertions.

Long may *we* deserve and appreciate their self-denial, and long—very long—may we enjoy the privilege of having them as our official guardians.

In a Society like the present, money matters necessitate delicate, firm, and careful management, and this we have in our esteemed Treasurer, Mr. H. B. Brady, who, though always considerate, is ever watchful for our interests; I sincerely hope, therefore, that we may hail him for many more years as Honorary Treasurer to "The British Pharmaceutical Conference."

On the motion of Mr. Mackay (Edinburgh), seconded by Mr. Williams (London), a vote of thanks was accorded to the President for his excellent address, which compliment he briefly acknowledged.

THE PAPERS.

Our space is too small for us to attempt even the barest outline of the reading of the papers, which was the real business of the meeting. We shall be able to publish abstracts of some of these hereafter, and all will be printed in full in the "Year-book of Pharmacy." Discussions took place on Mr. Rimmington's Paper on Citrate of Magnesia of Pharmacy, in which the adoption of a misleading title was strongly condemned. Mr. Brady made one slight attempt to stem the torrent of indignation on this subject by suggesting that the name had been given on the same principle as Scidlitz Powders had been applied. But the general feeling of the meeting was too strong for him, and it relieved itself by a resolution, moved by Mr. Dymond, seconded by Mr. Sutton, and carried by a large majority, condemning the alleged misnomer. An interesting discussion also occurred on pharmaceutical education. Had time permitted, there would, doubtless, have been a warm discussion on the storage of poisons, on which subject Mr. Edward Smith, of Torquay, read a paper advocating the adoption of a special colour. Many of the papers were valuable contributions to pharmaceutical literature, but the time in which they had to be got through was too short for so many, and occasioned at the end a scampering over some important communications, which gave more the idea of a school where the boys were longing to get to the end of their tasks, rather than an assembly of scientific workers.

THE DINNER.

On the first evening of the Conference over a hundred gentlemen met at the Adelphi Hotel, for dinner. Mr. Abraham presided, and Mr. Sumner was in the vice-chair. A telegraphic message was sent to the American Pharmaceutical Association, at Baltimore, referred to elsewhere. Eulogising the President's address which they had heard that day, Mr. Abraham proposed the "Health of Mr. Stoddart," which was warmly responded to. In reply, Mr. Stoddart thanked the gentlemen present for the honour done him—an honour to which he had never thought to aspire. All his work for the Conference had been done with the greatest affection and love. He looked forward to the incalculable benefits which the Conference would realize hereafter.

Mr. Sumner proposed "Prosperity to the Pharmaceutical Society," which he described as the parent of the Conference, and associated with the toast the name of Mr. Sandford, the President of the Society. This toast was very warmly received, and

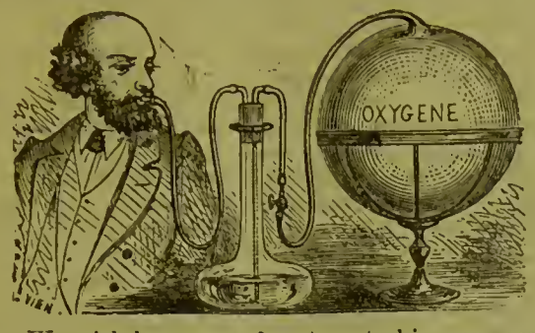
Mr. Sandford, in response, said it gave him great pleasure to hear the Pharmaceutical Society so kindly spoken of by Mr. Sumner, and so heartily acknowledged by the meeting; the business of the Conference should be pharmacy, pure and proper; but the Society had other business in which that Conference could help it. It had the duty of advancing pharmaceutical education; he hoped it had not neglected that duty, and the time would come when it might do it more extensively than it had done hitherto—when it might support pharmaceutical schools, not only in London but in the country. Certain duties, not of its own seeking, had been put upon the Society by the Government, and they must endeavour to carry out those duties faithfully. The members had the matter in their own hands, and so long as they acted honestly would have the support of the Government. The Conference could promote that very much. To the Conference a great deal might be due for the passing of the Pharmacy Act. It was, therefore, with great pleasure that he had heard the chairman speak so highly of the Pharmaceutical Society. As for himself, he returned thanks for personal kindness, and should never forget that in the Conference af 1868 a very great honour had been conferred on him. He hoped the Conference would long continue to be the prosperous body it now seemed to be.

"Success to the Liverpool Chemists' Association" was proposed by Dr. Attfield, who described it as "the most important association of the kind in the kingdom." Messrs. Robinson and Shaw responded. Excellent speeches followed from Messrs. Reynolds, Brady, E. Davies, John Mackay, and Professor Archer, and most heartily the members from other parts of the country joined in drinking the healths of "The Chairman," "The Vice-Chairman," and "The Local Committee."

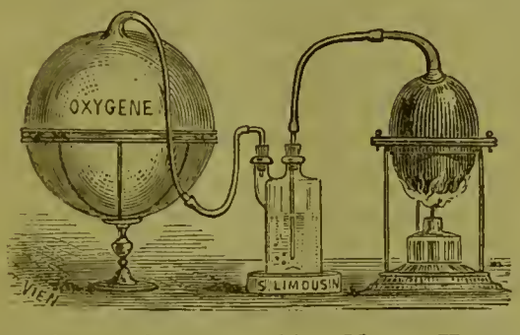
THE EXHIBITION.

In this journal we have so frequently given reasons for advocating at least one competitive exhibition of the very interesting products and manufactures connected with our trade, annually, that we need hardly introduce our remarks on the collection which was got together at Liverpool, by any generalizing on the importance of such shows in their relation to the advancement of pharmacy, both as an art and as a business. Manufacturing chemists can present collections of products, which for beauty or interest cannot be rivalled by any other manufacturers; and the mind of this reporter boldly overleaps all the troublesome commercial considerations which probably stand in the way, and imagines the handsome effect if, for a set occasion the nave of the Crystal Palace or some other suitable building were devoted to a display of such articles; a display which would be attractive to the general public, and immensely useful to all engaged in the practice of pharmacy, medicine, or chemical labours of any kind. Until this consummation is effected, we must be thankful to go on step by step towards it, and be exceedingly grateful for the very large step which was made by the Liverpool committee, and manifested in their well-organized, well-arranged, and popular exhibition. The collection was placed in two rooms over the Savings' Bank, in Bold-street, and these rooms were fairly filled with objects, without being overcrowded. The smaller room might have been a reading-room for ghosts, as it contained Mr. Ince's collection of 100 old books on pharmacy. Mr. Martindale's ingenious apparatus for spreading plasters was also displayed here, and worked occasionally; also a herbarium, which was kept carefully locked. In the larger room, on entering, the visitor was met with a tempting display of metric weights and measures, exhibitor anonymous; Dr. Attfield, doubtless. Everyone acknowledged how much more perfect the metric system was than that which we now use, and at least 90 per cent. of us silently hoped that the change would never be made in our days. Next to these was M. Limousin's very pretty apparatus for the manufacture and inhalation of oxygen. M. Limousin sent

us engravings of these by almost the last mail which left Paris in the ordinary manner. At the present moment we believe he is busily engaged in helping to defend his city from the German armies instead of pursuing pharmaceutical



labours. We wish him an early return to his more congenial occupation. The drawings explain themselves; we need simply add that the reservoir for oxygen is of india-rubber, and that packets of salts are supplied whereby it is prepared. We know of no apparatus so convenient for the



administration of the gas as this. Messrs. Howe and Co., of Aldermanbury, are agents for M. Limousin in London. This firm also exhibited other chemicals of Continental manufacture, some cheap tannin for technical purposes, bleached shellac, etc. Messrs. Evans, Lescher, and Evans added greatly to the appearance of the room, by a most interesting collection of tropical medicinal plants in growth, including cinchona, ginger, several peppers, cinnamon, nutmeg, castor oil, vanilla, camphor, and many others. Besides, they contributed an excellent collection of drugs and pharmaceutical preparations, and a supply of Montserrat lime juice cordial for refreshment purposes. Also a sample of thymol, a solid white oil of thyme of very pure odour, now used in perfumery.

Carbolic acid was in force. Messrs. Calvert and Co. had a pretty case, showing the acid and a variety of preparations made with it, as well as specimens of other preparations from coal tar. Messrs. Lowe and Co. had a magnificent specimen of the crystallized acid, which, we were informed, weighed not less than 1½ cwt. This firm exhibited also some splendid specimens of anthracene, crude and pure, anthraquinine and rosalic acid. Some of the visitors referred to Messrs. Lowe's exhibit as the gem of the collection. We were also much pleased with a case which was arranged to show the stages of manufacture of caustic soda, as was shown to the members on the excursion day at Messrs. Hutchinson's Works, at Widnes.

Messrs. Southall, Son and Dymond, of Birmingham, had many warm partizans, who would have given them the prize, had there been one to receive. Their exhibit was of great interest to pharmacists. A large portion of it consisted of a rare and unique collection of the Indian materia medica, non-officinal in our Pharmacopœia. We are not quite sure that Messrs. Southall would do much service by adding to our present over bulky list of drugs. We are like David with his armour, and the homœopaths with their growing materia medica; we have not yet *proved* all the drugs we have. We want more skill in using those we have, not an increase of them. Nevertheless, it may be well to know where a stock of Indian drugs is to be had. Everyone noticed the magnificence of Messrs. Southall's scale preparations, and their iodides and bromides were also much admired. They exhibited besides some excellent specimens of various pharmaceutical preparations, and some cases of their analyzed drugs. It seems they have a habit of supplying opium, scammony, the barks, etc., with the proportion of alkaloid or resin guaranteed, a system worthy of commendation and imitation.

Mr. Stanford (representing the British Seaweed Company, Glasgow) made a handsome display of the products of his special branch of chemical manufacture. This company has for its primary object, we believe, the extraction of iodine from the seaweeds yielding it. The charcoal prepared from the refuse, however, is a heavy business, as it has great absorbing powers, and is very cheap. For all the purposes wherein animal charcoal is used, this seaweed charcoal seems an efficient substitute, and Mr. Stanford, as our readers will remember, has lately advocated its employment for the treatment of excreta on the principle of the dry-earth closet, the chief advantage over the use of dry earth being, that 25 per cent. of charcoal, as compared with earth, is sufficient to deodorise the excreta, thus to a great extent obviating the one great objection against the dry-closet system to replace the water, namely, its bulkiness and consequent inconvenience. No doubt the use of this charcoal would add to the value of manure from this source. Mr. Stanford's calculation of the wastefulness of the water-closet system is that the material, worth about 30s. per ton, has its value reduced, by dilution, to 1d. per ton, which it is impossible, by any known chemical method, to extract with profit.

The other specimens exhibited by this company were a series of potassium salts, crude and resublimed iodine, etc., products from seaweed char, and some liquid ammonia, acetate of lime, and other products from excreta obtained by an entirely new process.

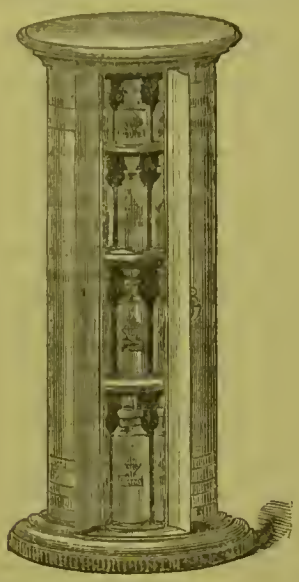
Among other exhibitors of chemicals, we should include a magnificent specimen of alum shown by Peter Spence; a multitude of the opium alkaloids—we hope all of them, for we have a note that there were forty-seven—prepared and shown by Messrs. Macfarlan and Co., of Edinburgh. Mr. Balmer, of St. John-street, exhibited his specialities, the sulpho-carbolates. Messrs. Hopkin and Williams were chiefly strong in various combinations of chloral; and Messrs. Herrings and Co. showed an interesting collection of pharmaceutical preparations. Mr. A. H. Mason, of Liverpool, contributed some beautiful specimens of borax, and Mr. Martin, of Redlands, Bristol, a pretty case of chemicals.

Coming now to sundries, we notice first of all that Messrs. Maw, Son, and Thompson were exhibitors, if we are not mistaken, for the first time. Among their very interesting display were certain novelties which attracted some attention. Prominent among these were the Nautilus, a new swimming belt, and Messrs. Bullock and Reynold's inhaler, which has recently been described in these pages. A store poison bottle was the most ingenious of the kind which we have seen. The stopper is bored through by a thick pin, and a spiral spring in connection with it spans the lip of the bottle and clings to the neck, thus entirely preventing the removal of the stopper until a gentle pressure is applied to the nob of the pin. Mulloney's patent bandages were also among Messrs. Maw's goods, and are worth the attention of those who do not know them. They are woven in such a manner that the edge will expand in exact proportion to the middle of the fabric, so that while the selvage is perfectly firm, and will not unravel in wear or washing, it cannot chafe or indent the most tender limb.

Mr. Tomlinson, of Manchester, was also very prominent with a dispensing counter. He had besides specimens of his well known specie jars, cod liver oil plasters, and other goods. Mr. Goodall showed one of his levigating machines, and some specimens of powders, extraordinarily smooth ground thereby.

Mr. Silverlock, besides some specimens of label-printing, exhibited a novelty to which we ask the particular attention of practical dispensers. It was a cylindrical cupboard, 9½ in. in diameter and 27 in.-high, containing four shelves inside, all attached to an upright rod in the centre, and intended to hold all the poisons required at the dispensing counter, the different shelves being constructed to hold 2 oz., 4 oz., 6 oz., and 8 oz. bottles respectively, forty in all. The whole of the inside arrangement revolves with perfect ease, and thus at the door of the cupboard the poisons are presented in succession one at a time. In this shape room is greatly economised, and an almost perfect assurance of safety seems to be secured. The arrangement needs to be examined to see how simple it is. Mr. J. S. Haywood, of

Nottingham, surgical instrument maker, exhibited the model of a man to whom life must indeed be a burden. The gentleman wore elastic stockings, a truss, an abdominal belt, a chest protector, and, we believe, some other aids to existence. The Silicated Carbon Filter Company made a prominent show of their various styles of filter, some of which are very artistic. We should like to mention in



SILVERLOCK'S CYLINDRICAL CUPBOARD.

addition as among the interesting objects of this exhibition Messrs. Gillou and Co.'s preserved meats, concentrated essences, and lime juice; Mr. Bostock's case of lozenges, which were very excellently finished, and seemed fully equal in quality to those of any London manufacturer; some handsome articles of Mr. Rimmel's; Mr. Barber's (Liverpool) pharmaceutical map and books; a new style of gas furnace by Mr Groves; a pill scoop by Mr. B. S. Proctor (surely an almost superfluous exercise of genius); some extraordinary specimens of work done by Foulke's cement; and a sample of saccharo-chirettina sent by Messrs. D. S. Kemp and Co., which, if it is what its name indicates, and from its taste we think it is, is rather dear at 12s. per lb.

We must not forget to add that a book containing the original designs for dispensing counters reported on in this journal last month, and Mr. Young's (Warrington) model showing a safe method of keeping poisons at the dispensing screen, were exhibited on the table, and excited much attention.

There was a small proportion of rubbish at the show, and we fear, too, some good things which we have overlooked. But we have endeavoured to do fair justice to what we take to be the commercial side of the British Pharmaceutical Conference.

THE EXCURSION.

Among other evidences of hospitality, the Liverpool chemists set apart one day for an excursion, and had already taken care that the day should be fully occupied. The social enjoyment of the occasion was greatly enhanced by the glorious sunshine which seemed to have been specially retained, and the Liverpool meeting was fitly closed and crowned by a liberal banquet in the evening, provided among the ruins of Halton Castle. It may be well understood that 150 hungry chemists left behind them more ruins than they found. It is our purpose to give brief descriptions of the works visited during the day, as the manufactures inspected were of more than local or temporary interest.

GOSSAGE'S SOAP WORKS.

The first establishment visited was the Soapery of Messrs. Wm. Gossage and Sons, at Widnes. Mr. F. H Gossage conducted the party, and won golden opinions for his courtesy and the clearness of his descriptions. This establishment has sprung up within a few years from a small commencement, and now occupies almost, if not quite, the highest position as a soap manufactory in the United Kingdom. Mr. Gossage was a manufacturing chemist, and commenced to make soap in the year 1855.

In that year the war between our country and Russia was raging, and the value of all kinds of fats and oils was greatly enhanced. Mr. Gossage directed his thoughts to finding a substitute possessing some of the properties of Russian tallow, and thereby decreasing to some extent our dependence upon Russia for a supply of this article. He found that the compound known as soluble glass, or silicate of soda, was possessed of high detergent powers, and, when prepared and applied in a suitable manner, it proved a valuable compound for combining with ordinary soap. This compound is analogous in several of its properties to soap made from tallow and soda, inasmuch as ordinary soap is a substance in which the alkali (soda) is held in a state of weak combination with tallow, and therefore in a condition to exercise its well-known cleansing power. In like manner, silicate of soda is a compound in which soda exists in a state of weak combination with silica, thereby retaining its cleansing power, just as it does in ordinary soap. Mr. Gossage obtained a patent in 1855, and has since taken out other patents for subsequent improvements in the mode of working. We will describe briefly the process by which the very curious article "soluble glass" is produced. The apparatus employed for this purpose consists of a large reverberatory furnace, in which are melted together certain proportions of fine white sand and dry carbonate of soda (soda ash) of best quality. Each charge weighs about 25 cwt., and requires six hours of very strong firing to effect its fusion and a perfect combination of the materials. The melted charge is then withdrawn by opening a "tap-hole" in one side of the furnace, and it runs out as perfect glass. The lumps of glass thus obtained are transferred to large vats, in which they are exposed to the action of boiling water, and the solution produced is run off into boilers to be concentrated to a suitable strength for transport to other soap manufacturers. In the alkali department, where the rough soda is prepared, from the solution of which is obtained, by purification and caustification, the alkaline lyes required for the manufacture of soap, the rough soda liquors are purified by an ingenious arrangement. The impurity in these liquors, which affects the colour and quality of the soap produced by their use, is a compound of sulphur, which can be neutralised by the action of atmospheric air. The knowledge of this fact was useless until means were devised by which the rough liquors and air could be brought into intimate contact with each other. Mr. Gossage hit upon the happy thought of distributing the rough liquors over the innumerable surfaces presented by pieces of coke contained in a high tower, at the same time that air passed through the tower. We saw the very impure liquor being supplied at the top of the tower, and flowing out from the bottom in a state of purity, the only agent employed being atmospheric air, which applied itself to its work of purification without any trouble or assistance. This liquor is of course the real detergent in the soap, the tallow or other material being thereby the vehicle which conducts it.

After the ingredients are prepared they are boiled together, and the liquid soap is transferred while hot by ingenious arrangements, whereby twenty tons can be delivered in as few minutes into large iron moulds, where it cools, and the frames being removed, stands erect a mass weighing about three-quarters of a ton. When partially dry the soap is cut up into bars, in much the same way as bricks are made, and we are informed that two men and six boys would cut as much as forty tons of soap in a day. So much for soap.

JOHN HUTCHINSON AND CO.'S ALKALI WORKS.

The first process shown here was the roasting of pyrites for the production of sulphuric acid. From the large leaden chambers in which the acid is condensed, it runs to the salt-cake furnaces. Here, sulphate of soda (technically called saltcake), is formed by the action of sulphuric acid upon chloride of sodium (common salt). The hydrochloric acid evolved, being collected in the condensing towers, is subsequently employed in the manufacture of bicarbonate of soda, and in the recovery of sulphur from alkali-waste by Mond's process. The next operation was the decomposition of sulphate of soda by Leblanc's process. This is effected by heating the sulphate, together with limestone and small coal

(slack), in a reverberatory furnace (black-ash furnace.) The resulting black-ash broken up and lixiviated in the "vats," yields a saturated solution of soda, principally as carbonate; whilst from the insoluble residue known as alkali-waste, the sulphur is recovered. The solution of soda (vat-liquor) is either evaporated in over-fired pans by the waste heat of the black-ash furnaces, so as to produce salts which, when calcined in a "finishing furnace," form the soda-ash of commerce, or after being diluted with water and "causticised" by boiling with quick-lime, is evaporated in under-fired cast-iron pans, known from their peculiar form as "boat-pans," from which it passes to the "finishing pots," where all the water which can be expelled by heat is drawn off, and caustic soda (hydrate of soda) remains behind in a state of fusion, Whilst still hot, it is poured into wrought-iron drums, in which, on cooling, it solidifies, and is then ready for market.

The manufacture of soda crystals (washing soda) from soda-ash was then shown. The soda-ash being dissolved in water by the aid of steam, the hot solution is allowed to stand for several hours, in order to deposit whatever impurities it may contain in suspension, and when clear, is run off into crystallising cones or pans, in which, after the lapse of several days, the formation of the crystals is completed. A portion of these crystals is sent to market packed in wooden casks or barrels of various sizes, the remainder being reserved for transformation into bicarbonate of soda. For this purpose the crystals are piled up in large air-tight vessels constructed of iron, wood, or lead, which, when full, are closed, and into which a stream of carbonic acid gas, prepared by the action of dilute hydrochloric acid upon limestone (carbonate of lime), is then turned. The carbonic acid is rapidly absorbed, the water of crystallisation, containing sesqui-carbonate of soda in solution, flows away, and in the course of eight or ten days, the contents of "chambers" containing fifty to sixty tons of crystals are converted into bicarbonate of soda The bicarbonate, in lumps retaining the original form of the crystals, is then conveyed to the "drying kilns," whence, when dry, it proceeds to the mill to be ground and dressed in a manner similar to flour, and is afterwards packed in small white wood kegs.

The sulphur recovery process is exceedingly simple. The alkali-waste above mentioned being oxydised by means of a current of air driven through it by a rotating fan, is submitted to lixiviation, and from the yellow solution which it yields the sulphur is precipitated on the addition of hydrochloric acid. The sulphur is then melted by steam heat under pressure, and after cooling, is ready for market. Being very pure, it is now much used for the manufacture of gunpowder.

This manufactory is one of the largest in the kingdom. It employs upwards of 500 men and boys, and produces weekly, 375 tons of sulphate of soda, the whole of which is afterwards decomposed on the premises, yielding 160 tons of soda-ash, 40 tons of crystals, 40 tons of bicarbonate of soda, and 50 to 60 tons of caustic soda. It consumes weekly upwards of 200 tons of pyrites, 340 tons of salt, 420 tons of limestone, and 1,250 tons of fuel.

The last works visited were those of

THE RUNCORN SOAP AND ALKALI COMPANY.

At these works several new and highly interesting chemical processes were shown to the visitors, among others, the decomposition of common salt with sulphuric acid from lias producers, and the salt afterwards roasted in furnaces by means of the same heat. The extraction of copper from burnt pyrites, by what is known as the wet process, also excited considerable interest, and the rest of the Company's manufactures, including soda ash, soda, crystals, and soap, were also explained and inspected.

ADDRESS TO STUDENTS.

THE following is a report of Mr. Schacht's address to pharmaceutical students delivered at Bloomsbury-square on the evening of Wednesday, October 5th.

Mr. PRESIDENT, LADIES, AND GENTLEMEN.

Before commencing my immediate subject, I wish to say one word about myself. I must ask you to accept my assurance that I am in no way responsible for the fact that this person occupies this position at this moment. It is the result of the spontaneous act of the Council. The arrival of the Secretary's note that contained the resolution nominating me to this duty literally and truly filled me with suprise; and I felt as some private soldier might be expected to feel, should his commanding officer summon him from the ranks to manœuvre the regiment at full parade. One moment of utter surprise, and consequent hesitation, in both his case and my own, might, I trust, be deemed excusable—no more than this, however, would duty permit; the next must see us delivering our salute, and proceeding to obey our orders with what skill we may, our respective commanders being mainly responsible for the results.

The two gentlemen who have immediately preceded me in this duty approached their task with unusual claims to attention and respect. The one was strong alike in evidences, spread over many years, of wise and generous interest in the progress of his calling, and in the consistent manifestation of those qualities of mind, life, and character, that have stamped him, even in these somewhat fortunate times, the model pharmacist. The other was an approved man of science, and a justly recognised leader of even the advance-guard of pharmacy.

Such credentials went far, not only to inspire their owner's words with special and peculiar force, but to justify their adopting, most becomingly and fitly, the tone of the teacher.

From no such point of vantage can the present address be uttered. It must come to those for whom it is intended from, as it were, their very midst. I must speak to them as one of themselves, or not speak at all; for I am no teacher, the utmost that conscience will suffer me to hope is that through all my days I may continue to be an earnest and reverential student of scientific truth. But those that called me hither knew this, no doubt, perfectly well, and deemed it perhaps not altogether a matter of regret. They may have estimated this ceremony (as I may presently desire to repeat) as an occasion when for grave public reasons its prominent actors would be most fitly selected from amongst the obscure; or, it is possible they may have deliberately chosen as their spokesman to a body of students one whose name was in some measure associated with a plea for the student class, and an effort, slight indeed, but still an effort, to supply the student's wants.

Let me, however, at once disown any special claim for consideration upon this latter score, for, in the first place, it would be by no means my exclusive right, many others having laboured in the same direction fully as earnestly as myself, though, perhaps, somewhat more silently, and, in the next place, my plea was not for students within these walls. Year after year as they have assembled to the launch of successive sessions of this school, I have envied them far too much to discover aught to plead for in their behalf. It has been for those outside these walls and outside this city that my plea has been raised. Twenty times the number that can gather here are compelled to stay without; for every single student that has the good fortune to revel amidst the riches of this school, at least twenty of the student class are debarred from ever setting foot within it. Of these some, it must be confessed, are kept away by nothing but their own indifference and carelessness. These are the drones of pharmacy, and a sad difficulty to ex have ever been, encumbering and marring every effort for professional advance, and discouraging all but the most earnest of the advocates of progress. But let it not be for one moment supposed that all who are not here are drones and idlers—that only one in twenty of our great student class have any care for science or for intellectual culture. Many long with all their souls for the advantages to be gathered here, and gratefully welcome every opportunity for improvement that is offered, even though it fall short of their ideal. And fall short, alas! it always does; for local effort, however earnest, and however fortunate, finds itself dwarfed and disparaged when compared with an imperial organization such as this; and it is not wonderful that observers who have some knowledge of both should be driven to reflect upon the differences that exist between them, and should endeavour to weigh their value and their effect upon the broad interests of pharmacy.

This important subject, I rejoice to know, at length

occupies the serious consideration of our executive, and will I freely hope, ere long receive a wise solution. In the meantime, local effort has done something; and it is gratifying to learn that in several provincial centres courses of study similar in kind to that pursued in this school, and very good in quality, are at this moment in operation; classes of anxious, hopeful, curious students are mustering for fresh sessions, there as here, and are equally expecting the revelation of good things. Bear with me, then, when I say that it is with these and with the less fortunate ones still, who have yet to long and wait in patience, that my first sympathies lie, and for whom I would spend the chief of my voluntary labours.

But it would be strange if, with such a sentence on my lip, my heart could fail to find a word of welcome for others also,—for all indeed who have the mind to estimate the value of scientific culture and the pluck to make the effort for its attainment. I said I envied the students of this school. By this was meant, not that I begrudged them one particle of the good fortune they are enabled to enjoy, but that I sighed to think so few, comparatively speaking, could grasp the fine opportunities this school affords. No—my only words to-night shall be, as I would wish them ever to be to all my fellow-students, words of heartiest congratulation.

So, then, most warmly, most heartily I congratulate you, my fellow-students, that you have determined, for yourselves at least, life shall not lose its greatest joy; that, although some around you select the husks of life, and pretend to be content therewith,—nay, try to persuade themselves and others that husk is the chief object of the plant's whole growth, and runs no risk of being trodden down at last of swine,—you have resolved that all this is false and specious; that you will look straight into truth itself, will pierce the husk, will grasp the seed and plant it anew in fair and cultivated soil, there to take root, grow and bring forth good fruit. Are not all who have so resolved indeed to be congratulated? They have touched the great law of universal Continuity, than which nothing can be nobler, "Be fruitful all;" and from henceforth a healthy unrest, a longing to fulfil a higher work urges their lives onward, upward. I said life's greatest joy; can one greater be hoped for man than that he should humbly attempt to fulfil his great Maker's purpose?

But the resolve is not quite all. There is no need surely to quote the many well-known words of wisdom you have learned upon this point.

Were I to begin with "Hell is paved with good intentions," and quote on till I gave you the parable of the seed that fell on stony places, I should but remind you of temptations of which you already know. I hint at them only because they give me grounds for further congratulations, for you are about to surround your good resolves with conditions the most favourable for their sustentation. These are—the enthusiasm of numbers associated in a common object—the influence of method and methodical training—and personal contact with able and earnest teachers. These are very potent agencies, and are worth a moment's thought.

The mind of the young man is, as you know, in the very gush of its ardour; the enthusiasm of youth is proverbial, and not only constitutes one of its greatest charms, but is one of its real powers also; yet, perhaps in a greater degree than is the case with most of the attributes of poor humanity, it is erratic, prone to change, and prone to languish. Let its emotions, however, have been but originally genuine, and the contagious influence of another's constancy, aided by the warm breath of friendly encouragement and friendly rivalry, is almost sure to fan the fading spark to a flame again. Depend upon it each can do much to help his comrade's constancy, very much to sustain the general gaze upon the general purpose.

To the same end also works that grand abstraction, method. Of all the qualities essential to the fair cultivation of that which is called mind, method appears to me to stand the first. Shall I therefore venture to say one word for the more general cultivation of mathematical studies amongst our younger pharmacists? From this place have been heard frequent and eloquent utterances in praise of classical culture; I willingly endorse them. It is not perhaps the special direction of my own taste, but I recognise its value, and appreciate the pains that others bestow upon it. Moreover, I am aware that in one direction at least it is essential to the proper fulfilment of our professional duties. But mathematics, which is indeed method, should, it seems to me, precede all special studies, or, at any rate, should accompany them side by side. The processes of mental and of corporeal development in many respects resemble each other; mind as well as body requires both food and exercise for its proper growth; the mere pouring in of meat and drink does not necessarily develop a healthy and vigorous frame; good wholesome exercise is needed for the double purpose of carrying every proper food-atom in streams of vital power to its appointed place, and for removing all that is superfluous, used up, and baneful. What judicious exercise is to the body the science of method is to the mind; it assorts and arranges all its mental pabulum, and exalts to the utmost its powers of assimilation. It would perhaps be difficult to conceive of a mind, properly so-called, utterly and entirely uneducated in method, but one in which this quality is fully cultivated starts for the attainment of any branch of knowledge at a wonderful advantage over another not so tutored; even such indeed as the trained gladiator would possess over the peaceful citizen in a contest of physical strength. True, that in the patient study of a science such as chemistry, with all its inherent logic and its splendid mathematical developments, the pupil almost, despite his previous habit of mind, becomes imperceptibly educated in the law of method, and in proportion as this occurs he reaps for himself a double reward. But he has much to overcome, much lee-way to make good before he can compete with his better-equipped rival, who has brought to the task an organization of power so complete that from the very first step each new fact as it is revealed, with all its attendant bearings, drops at once into its proper and appointed place, for ever after a veritable portion of his being.

I have been led to these remarks, which may to some appear unnecessary, from having more than once met with professed students of chemistry who were evidently ignorant even of the essential nature of an equation; and I hope, should there be any amongst those I am addressing whose attention has not hitherto been enlisted in these studies, they will make every effort to supply the omission, so that they may reap the fullest advantages of the methodically-conveyed instruction that will be presented to them.

But I return to the last of the three agencies indicated—the influence of the teacher upon his pupils. All teachers undertake a serious and a very trying responsibility; and in some departments of education their difficulties must be very great indeed. In those, however, with which we are mainly concerned the splendour of the subjects taught, and the illimitable interest that attaches to them, must go far to save the teacher from the sense of weariness and *ennui* so likely to attend the repetition of an ordinary oft-told tale. I cannot otherwise explain the constant freshness and enthusiasm of our professors of chemistry and botany, which, when I was a much younger man, used to fill me with surprise. In those days I had the good fortune to be a lecture-pupil under two very eminent men—the late Professor Brande and the late Professor Fownes. They were both, as you know, illustrious chemists, and they were both teachers of their science. One was old, and had been lecturing upon chemistry for thirty years; the other was young, and had but just written the beautiful Manual that bears his name. Was the old man dull, weary of his subject, and careless of its effect upon his pupils? and was the young man poetic, ardent and anxious? The younger man was, indeed, all that hungry student could desire, and so, also, was the elder. His thirty years of teaching had not diminished, by one sparkle, the energy and freshness with which in his youth he had been wont, as the coadjutor of Davy, to expound the great truths he had helped to unfold. He could, and he did, enkindle enthusiasm as genuine and as ample as attended the efforts of any of his juniors. And so I find it ever—in London and in Bristol—thirty years ago and now. Nor ought I to have wondered at the matter. Is there so great a difference between "thing of beauty" and a "thing of truth," that one is a "joy for ever," and the other may become a weariness in a paltry lifetime? Are they not rather convertible terms? Is not their essence identical—their source One? So at least experience seems to teach, for I find that when I am helping some young beginner to apprehend a little of what is involved in the fact

that two parts of hydrogen unite with sixteen parts of oxygen to the production of water, or when I read to my children the beautiful history of "germination," my mind falls perforce into an attitude of reverence, and becomes penetrated with a consciousness of sublimity as vividly now as when, as a youth, their first realization filled my eyes with tears. No living creature can be indifferent whilst unfolding the splendours of scientific truth, provided only his audience be in some accord with him. The single thing that has the power to drag his spirit down from the lofty regions where dwell his themes, is the consciousness that he is surrounded with masses of dull clay that either cannot or will not mount with him. When this does occur, his task is, indeed, a heavy one; his whole being contracts with a rigour that no effort from within can overcome; his entire organization suffers a collapse; but, on the other hand, let him but feel that he is addressing willing ears and open minds, and (I appeal to the experienced teachers round me) then he enters the treasure-house boldly as one who has a right, and scatters lavishly all its precious stores.

You see then, I hope, that all these influences are helpful, and, what is more, that their power for helping is largely in your own keeping.

And I can surely once more congratulate you, for you will, most likely, be surrounded with enthusiastic companions, you are certain to have able and earnest teachers, and your instruction will be excellent in quality and systematically conveyed.

It remains only that, having such opportunities, you should make the best possible use of them. You have elected to study here because this is the best school of pharmacy in the country. Mind that the scholars are worthy of it. Look well to your laurels, and to the credit of the school, for I promise you there will be some running close upon your heels who, handicapped though they be, will make a sturdy race of it.

But there remains something more to be said; at least, I should blame myself did I not give expression to a thought that has been for ever obtruding itself whilst writing these lines, especially when I endeavoured to realize this scene. I felt persuaded that when we really met, and I had approached the conclusion of my address, the question would occur, What does all this ceremony mean? Are the leaders of this great Society assembled,—has all this fair and goodly company come together for the sole purpose of doing honour to some scores of young men the majority of whom as yet, have done no more than declare their desire to study, and of listening to a few common places from an obscure provincial. Candidly, I think not. They are glad, right glad, to welcome you. They are glad, I will be bold to say, to greet me; but beneath and above any such slight purpose runs a meaning in this gathering, in the presence of which you and I individually are nothing, except in proportion as we are content to merge ourselves within it. Every man lives a double life, or rather his life has two relations,—an inner life, for which in this world he is responsible to his conscience alone, and an *outer* life, which relates him to his fellow-creatures, and in which occur his thousand opportunities of influence for weal or woe. In the one he may aspire so high as to become the temple of the Holy Spirit; in the other, to be as a light set upon a hill, to shine for all men's benefit. As with the individual, so with societies of men in their corporate capacities. This Pharmaceutical Society has a life to live before the world which imposes obligations as constraining as those which relate to its own members; and the proceedings of to-night constitute one of the legitimate occasions for its public confession of faith. It may be that for a moment my voice is the one most distinctly heard, and yours the ears most directly addressed; but my interpretation of this ceremony assures me we are but puppets standing for the moment in the place of an idea, and that by giving (as is done to-night) the places of honour to the youngest, and to the least distinguished of her votaries, this Society declares its homage to *science herself*; and records its conviction that, although its range of duties may at times include matters that savour of privilege, of trade, and even of private interest, yet that pharmacy is absolutely and verily a branch of pure truth.

Be this the general conviction or not, it is mine, and justifies me, I trust, in the expression of a hope that each one of you will enter upon his work with a serious spirit and a consciousness of real responsibility.

I have urged you to look to your laurels and to the credit of your school, and I now, in the name of the whole Society, wish you heartily and sincerely every success in your studies. Distinction and honours are within your reach,—strive for them by all means, and enjoy your rewards to the full; but I should rejoice to think that in the midst of any triumphs the future may bring, when the heart was beginning to swell with the pride of first achievement and success was threatening to awake the flame of vanity, some lingering memory of the higher obligation I have just indicated might serve to restore you to a humble spirit. I would that you and I could at all times remember we are not mere units, with privilege to live for ourselves alone, any more professionally than privately. We are ingredients of a body corporate, whose honour is to the extent of our opportunities committed to each one's care, and it is our bounden duty to preserve it pure. Let us aim high, therefore, and yet be lowly, seeking the general advance rather than our own advantage; in a word, let our first efforts be to become Christian gentlemen, and then, for certain, every fresh attainment we may acquire, and every meed of honour we may gain, will become a new grace and a new dignity for our common mistress, Pharmacy.

THE AMERICAN PATENT MEDICINE MEN.

TWENTY years ago the patent medicine men in America had no business status; they were few in number, generally of limited means, and were regarded as a class of adventurers, that respectable business men might as well give a wide berth to. Now, their ranks include a large number of the most capable, successful, and wealthy business men of the day, in that part of the world. The best known pioneers were Dr. Brandreth (pills), Swaims (panacea), Bristol, S. P. Townsend, and Sands (saraparillas), Dally (salve), Herrick (pills and plasters), Jayne (pills, expectorant, etc.), Moffat (pills and bitters), and Isaac Butts (Wistar's cough balsam). Of these preparations the majority have made fortunes for their proprietors, and most of them are still largely in demand throughout the North American Continent. Swaim's panacea is little in vogue now; while the series of sarsaparillas, so largely in demand from 1850 to 1860, are now only enjoying a fair sale. Brandreth, Herrick, and Jayne, still sell immense amounts of their pills, and the expectorant of the latter has a standard reputation; Moffat's articles are now only in moderate demand, and Dally's salve sells on its old time notoriety to a fair amount annually. The preparations of Dr. Herrick, of Albany, New York, pills, plasters, and liniment, are in wide demand, as is also the Wistar's balsam of wild cherry, which, in the hands of different proprietors, has passed through many business vicissitudes.

The old fashioned plan for the introduction and sale of patent medicines in America, was to consign them to the drug stores and general dealers, the country being travelled over by an agent in a wagon semi-annually, for the settlement of accounts, and the deposit of fresh supplies. This method, while proving very effective and systematic in the introduction of goods, became so expensive and tedious that the new operators in this class of articles adopted quicker ways of introduction. Consignments were only made to wholesale and prominent retail dealers in the larger towns and cities, while agents travelled in the more obscure districts to arrange cheaply with the local newspapers for advertisements. In this way, many of the adventurers in "patents" became embarrassed from the impossibility of realising sufficient funds from sales to meet their advertising and other outgoes. The majority of the successful men in the line to day have passed through embarrassments of this kind before reaching the smooth water of a successful business. Perhaps Dr. Herrick and Dr. Wright, have caused the continent to be more industriously traversed by special agents in their own wagons than any others, and the system, well persisted in, has effected the thorough introduction and large sale of their preparations. Dr. Ayer, of Lowell, effected the introduction of his pills, cherry pectoral, and sarsaparilla, by consigning them in the outset to a very select list of the

most respectable retail chemists, in all the first-class towns and cities of the Union; at the same time advertising liberally in the best newspapers of the localities. His success has been immense, and he is to-day one of the wealthy men of America. His personal and business character is much esteemed. In the day of the rage for "Sarsaparillas," millions of profit were made by the "Original Townsend," and large sums by the rival "Old Doctor Jacob Townsend's," while Bristol's (Buffalo) was greatly in vogue as well as "Sands'," which latter was sufficiently profitable, under the careful as well as enterprising management of the Brothers Sands, to produce for them large fortunes, and to enable them to found one of the largest and most highly respectable wholesale drug houses in New York. Both of these most worthy men died a few years since, leaving handsome fortunes to their families, and a splendid business to their sons and junior partners. If ever the Cheeryble Brothers of the lamented Dickens had a counterpart in America, the Brothers Sands may be named in that connexion. The sarsaparilla fever lasted only a few years. And all these old-time favourites enjoy to-day only a steady sale, yet are well remunerating their proprietors. Then began the "Hair Tonic era," inaugurated by Barry with his "Tricopherous." This secured an immense sale, which it still enjoys. He managed his business on the cash plan, never consigning any goods; and was a liberal advertiser in the most expensive dailies of the metropolis and other large cities. "Lyon's Katharion" was another highly successful article for the hair, which went into an enormous sale, under the pushing management of its proprietor (Mr. Demas Barnes) who, as the founder of a large wholesale patent medicine house in New York shortly afterwards, gained in a few years a handsome competency, and the leading position in the line; he has now retired from business, and is enjoying Congressional honours at the hands of his fellow citizens. Hair tonic and hair-dyo preparations sprung up on every side, and many enjoyed for a time a rapid sale. The tonics were generally composed of castor oil and alcohol perfumed cheaply and coloured with alkanet. The fabricators of these productions became quite important buyers of castor oil and essential oils in the wholesale market. The hair-dye people were also large consumers of nitrate of silver. Perhaps of all these, Cristodoro's, Batchelor's and Phalons enjoyed the greatest repute, which still continues. After this, the hair restoratives were launched, among the best known of which were Mrs. Allen's (largely sold in England at the present time), Wood's, etc. The Pain-killer, introduced by Mr. Perry Davis, of Providence, Rhode Island, many years ago, has been for a long time a most saleable article; its original introduction was effected with little or no newspaper advertising. One good agent in each town was appointed, and well supplied with printed matter. The novelty of the title, and the fact of its being bottled in a popular and cheap form in vials of various sizes and prices, led to its rapid introduction; handsome returns having been realized from the sale in America, this article has within the past three years been introduced in England, and is already on sale, with over five thousand dealers. Mr. Perry Davis had a theory that the article is always identified to a greater or less extent in the minds of the dealers with its promoter; and he therefore travelled largely himself among the dealers acting as his agents, and constantly kept them interested in his preparation. Later, Mr. Donald Kenucdy adopted the same plan, and to-day his "Medical Discovery" ranks among the most staple and profitable of the numerous articles in the patent medicine list. The "liniments" have had a large sale in America; among the most noted may be named "Tobias' Venetian," Hunt's," and the "Mustang," a favourite article in the South and West.

In cough lozenges the first, and in point of fact the only important push was made by Messrs. John I. Brown and Son, a highly respectable drug firm, of Boston, who introduced, fifteen years since, their "Bronchial Troches." A liberal policy in regard to advertising, and the adroitness displayed in obtaining the certificates of prominent clerical and other public characters, to incorporate in their announcements, led to their rapid introduction, and a consequently large and profitable demand. Among other celebrities, who endorsed the troches in a few characteristic lines, was the celebrated preacher of Plymouth Church, the Reverend Henry Ward Beecher. These excellent troches are now being introduced in England.

Vermifuges have had an extensive and profitable run in America, having been the special province of the Pittsburgh druggists, where three different articles have been produced, all of them selling largely and realizing handsome returns. "B A. Fahnestocks" and "B. L. Fahnestocks," as well as "McLane's," sell by thousands of gross annually throughout the Union.

One of the most profitable items in the whole American patent medicine list, is "Mrs. Winslow's Soothing Syrup," an article which in fifteen or twenty years has risen from a local sale in Maine, to a national, and even a world-wide one, for it is to-day sold everwhere, and by no less than seven thousand dealers in England alone. The system of advertising this article has been both bold and frequent in the most expensive channels, and adhered to with a persistency that has brought abundant returns to its proprietors.

An eminent New York drug house in the Spanish trade, has realized handsome profits by the sale of their "Florida Water," which, though originally only known in the Spanish Americas, has lately acquired a most extensive sale in the United States, through a liberal expenditure for publicity. The same house (Lanman and Kemp), have thoroughly introduced "Bristol's Sarsaparilla" in Spanish wrappers in Cuba, Mexico, and South America generally.

In "bitters," a heavy business has been done for fifteen years past. The leading kinds are "Hoofland's," "Hostetter's," and "Drake's," named in the order of their introduction, and they all enjoy a wonderful sale. Hostetter's are a Pittsburgh product, but known everywhere, and the profits on them have contributed, we believe, to the founding, or at least the development, of one of the grandest of the American drug houses at San Francisco, occupying the finest business premises in the trade. Drake's plantation bitters are probably more in vogue to-day than any other. Introduced only about ten years since, they have rapidly acquired popularity and an extensive sale. The profits are understood to have been large, notwithstanding the lavish liberality with which the advertising of them has been conducted

One of Messrs. Drake and Co.'s contracts made with the leading advertising house of New York (Messrs. Rowell and Co.) in the year 1868 amounted to nearly £9,000 sterling. From the profusion with which posters and show cards have been made use of, Drake's bitters have derived a good deal of publicity, as well as from their system of having the title and a motto, calculated to pique the public curiosity, painted on all available fences, dead walls, rocks, and old buildings, all over the country. The motto alluded to has no doubt contributed largely to stimulate the sale of the bitters, and much ingenuity has been exercised to reach the solution of the enigma. "S. T. 1860 X," has troubled the national slumbers as much perhaps as many a graver matter. Finally, a solution has been accepted, whether correct or not I am unable to say, viz., "Sure thing in ten years from 1860." It is well known that a handsome sum has been realized from these bitters, and they still enjoy an immense sale. Their proprietor has lately visited England to introduce the new food, "Sea Moss Farine," in which he is interested. Few of the English patent medicine men have operated to any extent in the United States. Mr. Holloway has, perhaps, made the most important business of any, and built up a handsome sale through a liberal advertising expenditure. Several successful American articles have been prominently put forward in England during a few years past, and they are all doing a profitable business. Their expenditures have been heavy in the outset, but the return has not failed to come. Perhaps the boldest operator to-day, among the American patent medicine men, is Mr. H. T. Helmbold, whose "Extract of Buchu" has a great sale. His style of advertising is essentially bold and original. His annual income is reported to be, clear of all expenses, over forty thousand pounds sterling; his article is comparatively a new one, having had no great position previously to 1860. So large a development of the business in proprietary medicines as is indicated in the preceding notes has, as can readily be imagined, not failed to lead to the establishment of several important wholesale houses in the Atlantic cities, who devote themselves exclusively to this class of goods—

thus relieving the regular drug firms from the necessity of dealing, except incidentally, in a class of goods somewhat stamped in the mind of the trade as illegitimate. They are, however, all willing to execute incidental orders, but, as a general rule, hold aloof from any forcing of the business. This feeling has aided a few strictly patent medicine houses to aggregate a heavy trade. Among them are the old house of Demas Barnes and Co., John F. Henry (successor), New York, and George C. Goodwin and Co., Boston. The former have made annual sales of half a million sterling. A very respectable English house in New York has, for some years, held a good position in the line (Messrs. F. C. Wells and Co.), while all through the South and West, are heavy jobbing concerns, whose annual sales of this class of goods are large and constantly increasing. Many prominent and highly successful articles have necessarily been omitted from this rapid sketch, in order not to occupy too much space.

P. D. O.

Chemistry and Pharmacy.

BY SIDNEY W. RICH.

COLOUR TEST FOR THE DETECTION OF STRYCHNIA.

MR. W. T. WENZELL communicates to the *American Journal of Pharmacy* some remarks on the most delicate colour test for the detection of strychnia. Although it is generally believed that the application of the test in the solid form is that which is to be preferred, this method has the great objection that the proportions of the salt and acid used are always too great towards the quantity of strychnia tested if the latter exist in very minute proportions or traces. It is required to add to the acid previously dropped on the suspected spot a fragment of a crystal of bichromate of potash, but if the alkaloid is minute, however small the crystal may appear, the oxidation will take place so rapidly as to either fail altogether in making an impression on the optic nerve or merely produce a momentary flash of blue. In testing for minute portions of the alkaloid it is a desideratum to use a reagent, the proportionate relations and superior sensitiveness of which will admit of the successful demonstration of mere traces of the poison. In experimenting towards that end I have found that a solution of one grain of permanganate of potassium in 2,000 grains of sulphuric acid is *par excellence* the test for that purpose. In delicacy of reaction, brilliancy of colours and duration, I have found it to be, in parallel experiments made with the bichromate of potassium and sulphuric acid test, greatly its superior. In testing, the sulphuric acid must be added in extremely minute quantities; then, by means of a small pipette, the point of which is drawn to a capillary bore, and charged with the reagent, a minute drop is allowed to flow upon the dot of acid, when, by means of a pointed glass rod drawn around the margin of the spot, the colours created by the reagent are obtained with varied degrees of vividness and duration, according to the amount of alkaloid contained in the deposit. Scrupulous accuracy and cleanliness should be observed in conducting these micro-chemical manipulations. The reagent ought to be freshly prepared from pure materials of proper strength, and used quantitatively with the greatest care.

ADULTERATED SAFFRON.

Mr. J. M. Maisch draws attention to the fact that saffron, though of good appearance and odour, and yielding a satisfactory tincture, may yet be considerably adulterated by a method displaying some ingenuity. A recent sample of saffron was intermixed with some yellow filaments, which proved to be partly the styles, but mainly the stamens with the anthers attached. This last-named intermixture naturally led to the conclusion that the orange-red powder which was found distributed through the saffron consisted of pollen. A number of small lumps were observed, somewhat glutinous to the touch, and consisting of a few styles, some other filamentous substance, and the pollen-like powder. To determine the nature of the unrecognised filaments, a few lumps were thrown into water, when they were found to be stamens and anthers. In this experiment the water had become so slightly tinged, and the supposed pollen settled so readily and in such a peculiar manner, that suspicion was aroused as to its identity. Under the microscope it did not show the structure of pollen; treated with dilute nitric acid it dissolved readily, with strong effervescence, and the solution, supersaturated with ammonia, produced with oxalate of ammonia, a white precipitate. The powder consisted of prepared chalk, coloured by saffron, and treated with glucose or honey to improve its pollen-like appearance, the aqueous infusion of the powder giving abundant evidence of the presence of sugar. The proportion of this adulteration is estimated at about 10 per cent. of the entire weight.

MISTURA CRETÆ.

According to a communication in the *American Journal of Pharmacy* from Mr. H P. Reynolds, the liability of *Mistura Cretæ* to ferment when prepared with sugar may be obviated by using the following formula, in which the sugar or syrup is replaced with glycerine:—

℞ Cretæ Prep.
Pulv. Gum Acac.
Glycerinæ (pure) āā ʒj.
Aquæ Cinnamomi ʒxv.

Mix in the usual manner.

Mr. Reynolds considers the substitution of glycerine for syrup or sugar in very many officinal preparations would be an improvement. Glycerine preparations made by cold percolation direct from the crude drugs may advantageously take the place of very many officinal syrups, possessing, if desired, the same density, better representing their respective bases, and of far more stable character.

In the same journal a different method of effecting the same object is recommended by Mr. W. R. Jones. Prepare a powder of

Prepared Chalk, ʒss.
P. Sacch. Alb.
P. G. Acacia, āā ʒij.

Mix well by rubbing in a mortar, and keep well stopped from the air in a bottle. When the chalk mixture is required, take ʒj. of the powder to fl. ʒss. each of water and cinnamon water for each fl. ʒ of chalk mixture required.

THE IVA, A MEDICINAL PLANT.

The *Chemical News* gives the following abstract of a lengthy paper by Dr. A. von Planta-Reichenau on the Iva (*Achillea Moschata*). The iva is a celebrated plant, a native of the Swiss mountains, and for centuries has been in high repute as a medicinal agent. The author first briefly refers to some historical facts bearing upon the iva and its use; and then states that, as nothing is yet known in reference to the chemistry of this substance, he, having an excellent opportunity to procure the herb, undertook the exhaustive research of the same. The lengthy memoir treats on essential oil of iva, which, in the crude state, has a bluish-green colour, a taste somewhat akin to oil of peppermint, while its smell is not disagreeable; its sp. gr. at 15° C is 0·9346; formula $C_{20}H_{10}O$. The pure oil boiling at between 170° and 210° C., is a pale yellow-coloured fluid, exhibiting a peculiar, strong, ethereal smell; its taste is bitter, but, at the same time, like peppermint; the formula of the pure substance is $C_{21}H_{10}O_2$. Ivain, an oleo-resinous bitter matter, readily soluble in water and alcohol, is the hydrate of the iva oil. Stearic acid is also present in the herb, and, moreover, three other substances, which the author has called Achilleine, Moschatine, and Achilletine, the latter being the product of the decomposition of Achilleine. This latter is a peculiar alkaloid, containing $C_{21}H_{38}N_2O_{15}$.

CINCHONA CULTIVATION IN INDIA.

WHILST we in Europe are slaughtering our thousands, and filling our hospitals with the sick and wounded in war, one of the antidotes that nature has provided for staying the hand of fever and pestilence, is being distributed more widely than hitherto about the waste spaces of the globe. In the propagation of the quinquina-tree the Indian Government is fulfilling a laudable and humane task, both to the natives, and more remotely, to this country also. It is by thus adding to the resources of India that England will best discharge the immense responsibility she has incurred by conquest, and will leave behind her a durable monument

of the benefits conferred by her rule. Upon what mere trifles do great events often hang? With a few grains of the essence of this bark, the physicians, who watched the Macedonian conqueror, as he lay sick of an intermittent fever, in his tent at Babylon, beyond the power of their art to heal, would, in all human probability, have lengthened his career of glory. Or, even in later times, had a few doses been administered to our own great Oliver, it is not improbable that the work of the Puritan party would have been consolidated during his life-time.

Science owes much to the early Spanish botanists, who explored the forests of the Andes with such untiring energy and distinguished ability. The secret had been jealously withheld by the natives from their conquerors, and not until an interval of many years after the pacification of Peru did the discovery of this valuable product become known. Even then, it took place under circumstances of romantic interest. The Spanish Corregidor, Don Juan de Canizares, had the secret revealed to him by an Indian, and he again, when he heard that the wife of the Count de Chichon, Governor of Peru, lay sick of a fever, sent a parcel of pounded quinine to her physician, Juan de Vega, assuring him that it was a sovereign remedy for "*tertiana*." A complete recovery was the consequence, and the fair hands of that Countess brought the remedy to the relief of her suffering fellow-creatures in Europe. Upon this little historic incident, Linnæus founded the name, distinctive of the whole species.

The distribution of the products of different parts of the world is one of the greatest advantages that civilization can bestow upon mankind. To America is India already indebted for the aloe, the arnotto tree, the sumach, the capsicums, so common in native curries, the pimento, the papaw, the cassava which forms the staple food of many people, the potato, Indian corn, pineapples, cotton, and now lastly the cinchona. An experiment made at an earlier period in Assam, with the tea plantations, had so well answered the expectation of the authorities, that it was determined to pursue a similar plan in the outset of the introduction of the quinquina-tree. With this object in view, an expedition was despatched in the year 1859 to make collections throughout various parts of the Andes. Forests and localities where the tree flourished were searched over and studied by able botanists, and in spite of the jealousy of the natives, an ample store of specimens were collected and despatched to England, where they arrived in safety at the Royal Kew Gardens. Here the very necessary precaution was taken of retaining a portion of the plants, and the remainder were sent to India, where a suitable spot had been selected amid the Neilgherry Hills, in the Presidency of Madras. This attempt had so far succeeded that we learn by a dispatch written by Sir C. Wood in 1863, that the specimens there grown and forwarded for analysis had been found to yield as large a percentage of quinine as could usually be obtained from the mature bark of the same species received from America. Many applications had been made by heads of families, whereby it was hoped that the use of quinine would be extended to the natives; the success of the cultivation, also, was all the more important, not only to India, but to the whole civilised world, from an apparent deterioration in the quality of the Peruvian bark obtained from South America. Subsequently upon a visit of Sir William Denison, the Governor of Madras, we learn from his description, how the two theories of the botanists had been tried with the plants: namely, that of planting in the shady parts of the forest, and in the open spaces. The latter proved the most successful. One of the estates was almost inaccessible by reason of the dense forest of about 100,000 acres, which surrounded a space of about 170 acres in extent, cleared for the purpose; but roads, bridges, and buildings were in course of erection throughout. We are now in a position to judge of the completeness of this experiment, by a return just published at the India Office, which brings the progress of cinchona cultivation down to the present time. From the opening dispatch penned in the year 1866 by the Secretary of State, the great object contemplated by her Majesty's Government was clearly defined. In the first instance, the Government was to bear the cost of the experiment, as no private person could be expected to undertake it, and to distribute the opportunity as widely as possible throughout the Indian Empire. With this view, every encouragement was to be given to officers of different ranks, who should make known the uses of the bark among the villagers and small holders of land, and through them the young plants were to be placed in suitable situations. It was arranged that, when the cultivation was undertaken for purposes of trade or profit, a charge should be made for plants sent from the Government plantations, but in all other cases the supply should be furnished gratuitously, and every other practicable assistance afforded in promotion of the work. The services of an analytical chemist of reputation were secured, and eventually a quinine factory was established at Ootacamund, the head-quarters, in the Neilgherry Hills, which have since been called the cinchona mountains.

The experiment commenced in India in 1862 had given every encouragement to the botanists engaged, the manager relates that the first trees, which had been planted out in August and September of that year, had attained heights varying from fifteen to twenty-two feet. These trees, he says, in July, 1867 "are in the finest health, have recently been covered with bloom and are now producing many millions of excellent seeds. Six hundred have been cut down, for their bark to be sent into the market in order to test its commercial value. The seeds gathered last season have germinated freely, and have been extensively distributed. Reports daily reach us of their excellence, and the great number of young seedlings raised from them." From the latest account of the proceedings we learn how the infant has grown to be a Hercules, the gardens flourishing, and certain kinds have yielded extraordinary results. The benefits have extended to Burmah, Assam, Ceylon, Jamaica, and even to the regions of Mexico near the cradle of the cinchona race. More particular interst may attach to the growth of such plants as the hop, the vine, and the cereals these being under our immediate observation, but when we reflect that the stock of this invaluable febrifuge has been indefinitely increased, the price of the bark reduced, and brought within the reach of the poorer classes, we shall be willing to accord our share of admiration to the skill of the botanists and all others engaged in an experiment of such vast interest, by the introduction and cultivation of the cinchona in India.

MEDICAL GLEANINGS.

THE *Lancet* has been writing a rather stupid article on the relation between the medical practitioner and the druggist. It is almost to be regretted that two well-known pharmacists, Mr. Barnaby, of Rochester, and Mr. B. S. Proctor, of Newcastle, should have thought it advisable to reply seriously to the nonsense put forward by this medical organ, in a tone which makes no affectation of the ordinary respect which might be expected from educated gentlemen, and is certainly innocent of all attempt at argument. Certain chemists somewhere, we are not told where, it is reported "prescribe for all the ordinary cases in the town, and feel pulses over the counter, *even the pulses of affluent ladies*." Could anything be written in worse taste than this? Feeling pulses is a simple enough business, though it is not usually practised by chemists in the manner described. But even if it could be considered a crime, we should blush for the profession which was in any way represented by a writer who could insert such a sentence as that which we have italicised. The prices charged by chemists for dispensing are also animadverted upon in the same contemptuous manner, and throughout the article an assumption of feudal intellectual supremacy is made, which is not likely to be strengthened in reality, by the adoption of such a style. Finally, chemists are threatened with a clause in the new Medical Bill, and with a continuance of private dispensing on the part of the doctors, if they do not mend their ways. The Parliamentary snubbing which these would-be medical legislators always get, when they try to place their own interests in the way of public convenience, should have taught them before now to be a little more modest in their demands on the law. And if the medical profession think well to set themselves in direct antagonism to the trade, we can only remind them of George Stephenson's often quoted remark, "So much the worse for the coo."

It would be a great pleasure after this to quote some passages from some of the earnest, kindly, and eloquent addresses delivered at the opening of the Medical Schools, Our space this month is so limited, however, that we must for the present deny ourselves that pleasure. As a specimen of many of the lectures, we may be permitted to take a few beautifully worded sentences from Mr. Brodhurst's address at St. George's, which all men—young men especially—will be the better for reading:—"No more time should be devoted to amusements of any kind than is absolutely necessary for health. It is not genius that is required to ensure success so much as honest, hard work—such constant and continued work as leaves the subject indelibly stamped upon the mind—unalterably possessed by its owner. Many pretend to knowledge who collapse, however, at the first touch. They have yielded to indolence and self-indulgence, and have proved dishonest to themselves, their friends, and their profession; and they arrive at the end of their career ignorant and miserably impotent for good. But besides hard work, there should be unity of purpose. He who acts as though there were but one thing in this world to be done, and does it well, is certain of success; while he who has many irons in the fire fails. Genius is the lot of few, it falls to no more than one in a million. Not only so, but it is rare to find anyone gifted with super-eminent talent for the employment he may undertake. The resolute man, however, fits himself for the work which is ordained for him, he accustoms himself to it, perfects himself in it, and determines to carry it out vigorously; and whether it be a trade or a profession to which he devotes himself—whether his work be in the eyes of the world lowly or reputable, he expends his whole strength in doing that which is set before him to the best of his abilities, and thus to the honour of God." A sentence inculcated by Mr. Bader at Guy's, too, is worth remembering. Urging the importance of devotion to study, he said, "Make it your motto—sooner be beaten than not try at all."

Such addresses as these must be of service, and we regret to hear that at some of the hospitals there is a tendency to follow the example of St. Bartholomew's in discontinuing them; but the following scene, which is reported as having taken place at Guy's on the occasion of Mr. Bader's lecture, is, to say the least, discouraging:—

The majority of the students present were little less than a lawless mob, unrestrainable by their professor or their cultivated and excellent treasurer. Before the address and before the staff entered the theatre, visitors' hats were knocked to pieces by walking-sticks (from the gallery); crackers and peas were thrown into the body of the theatre in great abundance, amidst the most terrible yelling and uproar; and during the address, crackers and peas were continually hurled down into the body of the theatre, accompanied by the most unearthly yelling and tumult, occasionally diversified by showers of cut paper. One gentleman received a cracker on his bald head, another one into his ear, and many fell harmlessly to the ground. I sat patiently during the whole of the address, but failed to arrive at the smallest idea as to what was said; the continued uproar and yelling, with occasional popular songs, "He's a jolly good fellow," etc., entirely prevented those who came to listen from arriving even at a proximate idea as to what was said. A gentleman, whom I know well, had his hat, before the address began, entirely beaten in with a walking-stick by some of the young men who are addressed by their professors as gentlemen.

The Government has decided to take from Apothecaries' Hall the monopoly so long enjoyed by that respectable body of supplying the medical department of the Army and Navy with their medicines. This is a course which does not deserve the strictures passed upon it by the *Pall Mall* as being one of sacrifice of the health of our men to a miserable economy; we consider that it is guided by the wisest principles of social economy.

THE PHARMACY OF THE PAST.

WE have the permission of Mr. Ince to print some of the reviews of old books presented by him to the British Pharmaceutical Conference. The authors of the notices which we have selected are Messrs. Marzials, Ince, and Reynolds respectively. The title-page of the first is very characteristic of many of these old medical works.

Occult Physick, or the three principles in Nature Anatomised by a Philosophical Operation, taken from Experience in three Books. . . . The First of Beasts, Trees, Herbs, and their Magical and Physical Vertues. The Second Book containeth most Excellent and Rare Medicines for all Diseases happening to the Bodies both of Men and Women, which never yet saw Light; An Incomparable Piece. The Third and Last Book is a Denarian Tract, shewing how to cure all Diseases with ten Medicaments; and the Mystery of the Quaternary and Quinary Number opened; with a Table shewing the Sun's Rising, Setting, Hours of the Day, Hours of the Night, and how many Minutes are contained in a Planetary Hour both Day and Night; with a Table of the Signs Continuance on the Ascendent, fitted for Magical Uses; As Gathering of Herbs; Roots, and the like, with their Uses. Whereunto is added a necessary Tract, shewing how to Judge of a Disease by the Affliction of the Moon, upon the sight of the Patient's Urine, with an Example; Also you are taught how to Erect a Figure of Heaven for any time given.—By W. W. Philosophus; student in the Celestial Sciences.—London, Printed by Tho. Leach, and are to be sold by W. Palmer, at the Palm Tree, near St. Dunstan's Church in Fleet Street. 1660.

"W. W.," or William Williams, of Gloucestershire, Philosophus, the author of this work, entertained no mean opinion of the value of his labours, assuring the "ingenious reader" that "in what he had done he had been as faithful as it is possible for mortal man to be;" and again declaring that "after ages will be engaged to praise the Lord for evermore, that this Book was ordained for the light." Nor was he apparently singular in this view; for his friend John Goode, "student in astrology," exhorts him, in a commendatory epistle, to continue to "bring forth of his store things new and old, and not to be weary in well doing," though "ignorance may despise thy labours and spare not."

Of the "vertues" ascribed to beasts and plants, the following may serve as a sample: "Take a great toad, kill him and put him into a horse dunghill, there let him lie, and the ants will consume the flesh; in the head you shall find a thing like a stone, great or little, the which being set in gold, and worn about a man, it doth give him warning of any mischief or ill to him that weareth it, by changing colours in divers manners." So again, W. W. declares that if you "take a cluster of Quickbane (or Wild Ash) tree berries, and convey them about the party suspected to be a witch, and then examine her, she shall confess;"—which seems hard if the suspicions were unfounded, and she happened to be innocent.

Though a large number of W. W.'s prescriptions are for physical ills, yet it is evidently on his magical and astrological skill that he rests his claims to the gratitude of posterity. He thus explains the scope of the "Denarian Tract," which forms the third portion of the work: "The Denary or number Ten, is the highest number according to the largest extent of Nature; for the number Five being the Spirit or Quintessence, joined with its body, the number Four, or the four Elements made pure, out of this number Nine, or by the conjunction of Four and Five, the sum of perfection is brought forth, which is the number Ten." "Some," observes W. W., "will say this is a high obscure speech." "Others," he quaintly adds, "will say it is nonsense." But undeterred by any such adverse opinion, he proceeds to treat of the "Ten Medicaments, whereby any curable disease is healed," and then gives various astrological tables for medical use.

It is not, of course, easy to discuss these astrological specifics entirely without a smile. And in the case of "W. W.," who was a somewhat belated astrologer, and confesses that "this kind of Learning" was "much a stranger amongst the men of his day," perhaps even more than a smile may be pardoned. But still it should not be forgotten how long and intimately astrology and alchemy were blended with what we should now call legitimate science, and how much they influenced the minds of really great men; and thus we shall look upon them, not with scorn, not even patronisingly, but as an interesting phase in the history of science. F. T. M.

Thomæ Sydenham, M.D.—Opera Universa.—In quibus non solummodò Morborum Acutorum Historiæ et Curationes nova et exquisitâ methodo diligentissimè traduntur, verùm etiam Morbornm fere omnium Chronicorum Curatio brevissima, pariter ac fidelissima in Publici commodum exhibetur. 1705.

This celebrated work needs little or no description, but it is exhibited as being one of the books which founded Modern Modicine and Pharmacy.

Sydenham was born in 1634, with the misfortune of hereditary wealth. Dr. Cox, the family physician, attended his brother, and engaged Thomas, who had no occupation save genteel idleness, to enter on the career of physic. His history is remarkable as being one of uninterrupted success. An Oxford scholar, fellow of All Souls, and a gentleman at ease, he gave himself up to study. His Manual, here presented, is one of the classics of the profession. To describe it would be foolish; to omit it from this collection would be wrong. Sydenham died at Pall Mall, December 29, 1689; and St. James's Westminster, received all that was mortal of one of the greatest physicians of his age or of any other.

J. I.

Pharmacopœia Reformata; or, an Essay for a Reformation of the London Pharmacopœia. London: 1744. Pp. 292.

The authority belonging to the Pharmacopœia of any country will doubtless present itself to many minds in so unquestionable a form, as might fairly be represented by the assertion—*nascitur non fit*. Such an idea has, in our time, received a somewhat rude shock by the unflattering reception given to the British Pharmacopœia of 1864, and its early supercession by that of 1867. To the student of pharmacology, such an opportunity of observing the behaviour of each formula under merciless winnowing is invaluable. It is not always as Hood wrote, "the green leaves hang, but the brown must fly;" and yet this is the fate of many a leaf which we deem "sere and yellow," although it once made a brave show, and was received with unquestioning confidence by both physician and patient.

The volume named at the head of this notice carries us back for a century and a quarter, and we believe it will prove the existence at that period of sound and clearly defined views of those principles which should guide the construction o a Pharmacopœia.

The author of the "Pharmacopœia Reformata" does not make public his name, but the origin of the work is singular, being due to the fact that the committee of the College of Physicians appointed to review their Pharmacopœia, took into their counsels the whole of the members of the college, before the final decision was made.

Their own statement is that they "have thought fit to provide every member of the college with a copy of what they have hitherto done, that they might not any longer be deprived of the assistance of the whole body." The present volume is a criticism upon this draft Pharmacopœia.

The first half of the eighteenth century found the *Materia Medica* still loaded with the absurd remedies which had been accumulating for a few hundred years, and it is clear that one of the chief functions of a "reformation" was the unsparing use of the pruning-knife to these excrescences. Our author's preface commends the action of the committee as having "with a good deal of freedom and severity" corrected many faults. It is stated of the college, "that in some of the former prefaces of their book, they have not disdained to ask and accept of the assistance of such apothecaries as appeared to them most skilled in this art."

The author lays down a number of general principles, some of which appear to deserve quotation here. For instance:—

"That no compound medicine contain more ingredients than appear absolutely necessary.

"That such simples as are indigenous, or are easily to be procured in perfection, be preferred to all others.

"That a just medium be kept between superfluity and penury, with regard to the number of medicines."

Further principles laid down refer to the rejection of perishable compounds, as electuaries, etc.; also, they assert that the apothecary should not be put to needless labour or expense, and that there should be a sufficient reason for the rejection of any medicine.

The official report of the committee of the college states "that many medicines, whose names are still retained in practice, are universally prepared by the apothecaries in a very different manner from the directions of the Pharmacopœia." The alterations which they now propose are designed to remove all excuse for such deviations. Some of the explanations of the committee are by no means without interest at the present time. Take, for instance, the following:—

"Redundancy in composition must have had various causes. Whenever the powers of medicines were but imperfectly known, the most obvious remedy was to accumulate many of similar virtue, that the most efficacious might have the better chance to be of the number; mistaking the true virtues of any medicine would cause it to be improperly consorted with others; and any wrong opinion of the complex nature of a disease must equally occasion an irregular mixture of discordant ingredients. But what seems to have given rise to the enormous multiplicity in composition was the project of framing preservatives against poison. This gave the fairest pretence for that immeasurable length to which we find some of these antidotes drawn out. As such a medicine was to leave no known species of poison, without a particular preservative inserted against it upon this principle, it became the ambition of every new compiler to exceed his predecessor in the multiplicity and variety of his ingredients, especially when these antidotes were to be wrought up into little less than universal medicines, and to protect likewise against the attacks of all diseases;* and this ostentation once began, extended itself into all the parts of pharmacy, and compound medicines of every kind were admired for what they ought to have been condemned—the false pomp of numerous and various ingredients; nor were schemes long wanting to justify a practice so well suited to gain veneration from the ignorant."

"The principal ingredient of a composition was sometimes to have its powers heightened, sometimes abated; sometimes the ingredient was accompanied with noxious qualities, which wanted correction; sometimes its operation was to be directed to a particular part, and perhaps other parts at the same time to be defended; add to this some modifications necessary in regard to the particular constitution of the patient; and each of these, with many other such fanciful intentions, were to be answered by the addition of one or more ingredients."

"This was the state in which we received pharmacy from the Arabians and Greeks upon the revival of letters in these western parts of the world."

Our author's criticisms shall now be judged by a few specimens. Let us commence with one referring to the sheet-anchor of remedies—opium. The committee proposed an altered process for opium purification, reducing the ample quantity of water hitherto used, and specifying that equal quantities of opium and water were to be used. Our author justly questions the expediency of the change, observing that, "the original design of dissolving the opium in a large quantity of water, which was afterwards to be evaporated to the consistence of an extract, was not so much with a view to its purification with respect to its heterogeneous substances, as to correcting it of some noxious qualities which were attributed to its volatile and resinous parts, and which were by this means effectually separated from the extract.

Our familiar friend, extractum colocynthidis compositum, appears under the name of extractum radii, although it is now shorn of the following drugs which were then included, viz., agaricus, radix hellebori nigri, radix turpethi, cinnamomum, macis, and caryophyllum. Our critic indicates as needful, the changes which were subsequently made, and which essentially sufficed to hand down the remedy to our time.

Spiritus cornu cervi is pointed out as a remedy in extensive use, but "hardly ever met with twice of the same strength in the shops." To correct this evil, it is suggested that a slight excess of the resultant sal cornu cervi should always be left undissolved in the "spirit." This was not a bad suggestion for a time when hydrometers and standard solutions for volumetric assay were alike unknown.

Pilulæ saponaceæ were composed of soap, liquorice and opium, and the doubt which must have presented itself to

* *Vide* GALEN *de Antidot. in Princip.*

many minds as to the reason for selecting soap as an excipient, receives this explanation in a note by the committee. "Matthew's pill was originally composed upon this fantastical conceit, that soap of tartar was endued with an unaccountable faculty of correcting the noxious qualities of all vegetable poisons, and converting them into medicines of uncommon efficacy."

We now take leave of the "Pharmacopœia Reformata" of 1774, believing that it is but one of many old books on pharmacy deserving our notice, and from which we may glean, without being open to the charge

> "Of dropping buckets into empty wells,
> And growing old in drawing nothing up."

R. Reynolds.

Veterinary Notes.

BY W. HUNTING, M.R.C.V.S.

INFLAMMATION.

In my "Notes" I have referred to many subjects in which inflammation is the main or only feature.

As this condition accompanies all serious injuries, and, affecting various special organs, as the lung, eye, etc., constitutes the heaviest class of diseases, it is important we should have a correct knowledge of its nature.

Were I not thoroughly convinced of the practical value of such knowledge, I should hesitate to enter upon a topic so likely to be considered "theoretical."

Inflammation is said to exist in a part presenting these four symptoms, heat, pain, swelling, and redness. It is a process passing through certain regular gradations; it may reach a certain point, it may cease before gaining that, or far exceed it, each stage being marked by different phenomena, and requiring different treatment.

Instead, then, of the one word, it will be more correct to use the phrase, inflammatory process.

This process is always local; the changes taking place in the part have been often examined in the web of a frog's foot by the aid of the microscope, inflammation being artificially induced.

A stimulant applied to the part, first produces contraction of the vessels, then a gradual dilatation, and an extra flow of blood in the part. If the irritation is removed, and has not been great, the vessels gradually resume their normal state. So far, no diseased action can be said to have occurred; there is simply a determination of blood to the part, as there is to the face in blushing. Should the irritation be continued, the distension of the vessels increases, the flow of blood in the part is increased in quantity, but soon diminished in rapidity till the stream is almost stagnant. This stage, called congestion, is decidedly within the confines of disease; from it the vessels can only return to their normal state by allowing the passage through their coats of the more fluid parts of the blood.

Should the irritation be further continued, the blood becomes stagnant, effusion from the vessels is not only watery but fibrinous, and some of them may give way and allow of blood itself being thrown out. This is inflammation.

The inflammatory process may still continue, changes taking place in the exuded material.

These events happen in regular order; we may have the formation of pus or matter suppuration. If with the discharge of matter, the vascular derangement continues, we have the tissue destroyed in minute portions and carried away in the discharge—this is ulceration. We may go further, and have such a stagnation of blood as to cause the death of a mass of tissue—mortification.

We see, then, that the term inflammation embraces a vast number of changes which are more correctly described as a process. These changes in practice are not well defined, but pass imperceptibly into each other; they may cease at a point when comparatively little harm has occurred, or speedily run the whole destructive course.

It is important for us to know how far mischief has proceeded, and to judge of its probable termination, if we wish to interfere with any chance of success. To treat every stage of the inflammatory process in the same way is irrational, and to treat it at any stage as recommended by Youatt and many other authors, is worse.

Let us now try and explain the symptoms by the conditions we have described.

The local symptoms are heat, pain, swelling, and redness.

The heat is due to the increased quantity of blood in the part, the temperature of which is never higher than that in the central organ—the heart.

The pain is due to pressure on the minute nerve fibres by the distension of the tissues, and is always greatest in unyielding parts, or when very vascular tissue is bound down by an unyielding envelope, as in the case of the ligaments of joints, or in the disease known as "founder" in the horse's foot.

Swelling is caused by the exudation from the vessels, and by their increased fullness.

Redness, not seen on the skins of the lower animals on account of the hair, is due to the increased quantity of blood, and to the rupture of small vessels, allowing their contents to escape.

In the case of a pimple we see all the symptoms, we see also the various stages of the process most distinctly. From the first redness, corresponding to our first stage of determination of blood to the part, we trace it upwards. The swelling and pain betoken the accession of congestion, the little bladder or vesicle tells of true inflammation, still higher we find the formation of pus or matter. In the full-formed pustule we see inflammation in the centre, round it congestion, and still further outward, the redness of mere increased flow of blood.

We must remember that the blood-vessels are not enlarged from *excited* action, but from paralysis of their coats allowing over-charging, distension, and consequent derangement. All the heroic treatment for the "cutting short," and "keeping down" of inflammation is founded on the fallacy that there is excited action in the part. Being convinced that it is impossible to cut short inflammation proper, *i. e.*, our third stage, I must insist upon the doctrine that inflammation is a morbid process, in which the parts are functionally depressed, the distension of the vessels being due to paralysis of their muscular coats from defective nerve force.

A great difference in the behaviour of the exudation, dependent upon the part attacked, I must mention. Inflammation of the lining membrane of tubes and passages exposed to the air, gives rise to the formation of pus or matter, but affections of membranes lining closed sacs give rise to the formation of false membranes or adhesive fleshy bands. This is a valuable arrangement, as these bands formed in a canal would obstruct it, whilst matter in a closed sac would be equally as fatal.

Inflammation, though local, often affects the whole system; the mere pain of some attacks is sufficient to produce violent fever. The interference with the functions of affected organs is usually felt by the whole body, certainly so if it be an organ concerned in the nutrition of the body. The drain upon the system, caused by the prolonged discharge of matter, or by an excessive effusion from the blood, as in pleurisy, is often productive of great debility.

The treatment of inflammation, then, must be directed to the part and to the general system, and must consist merely in attempts to guide its progress to the nearest and most favourable termination. The cause being removed, we must place the part in the most favourable position for recovery. Under this head we may place such proceedings as the closing of wounds, the resting of fractured limbs, and in affections of internal organs, a supply of good pure air for affected lungs, a suspensory bandage for an inflamed udder, and a darkened stable for an inflamed eye. We must also try and relieve internal organs, by diverting some of their work to other parts, as by increasing the action of the skin to help the kidneys and lungs. Though slowly falling into disrepute, the antiphlogistic method of treating inflammation has still many advocates. It consists in bleeding, purging, blistering, and administering such drugs as are decidedly depressant, as mercury, antimony, etc.

All these agents, save the aperients, I consider positively injurious. Bleeding weakens the animal, does not empty the vessels of the affected part, predisposes to increased effusions, and renders repair a slower and more difficult task when the attack has passed off.

Local is no better than general bleeding, as the blood is taken from the flowing stream, and not from the obstructed vessels, which are left to right themselves in the only possible way—by exudation and subsequent re-absorption or removal as pus.

A blister on an inflamed part would only be an aggravation; a blister near an inflamed part, as on the sides in pleurisy, and on the belly in inflammation of the bowels, does no good save that it lessens or rather disguises the pain, a result obtainable as easily by fomentation. Mercury and antimony are both powerless over inflammation, and may do mischief to the system.

Aperients are useful as removing any accumulations in the intestines, together with a quantity of fluid from the body, and they guard against constipation, a condition to be avoided in all diseases.

Diuretics are also indicated as having a similar depletive action with aperients; they also promote the discharge of the waste products of the body. Of course, these agents are contra-indicated when the organ upon which they act is the affected one.

Sedatives are sometimes useful. Opium to allay pain, or aconite to modify the excessive action of the heart.

The aim of our local treatment must be to prevent stagnation of blood; if that has not occurred, to re-establish the flow if it has. To promote absorption of effusions, if possible, or if the formation of matter is inevitable, to favour that event and hasten its removal. Let us suppose the case of a bruise. Immediately it has happened, the continued application of cold may, by constricting the vessels, hinder their distension, and consequently stay the process by preventing the first step. The cold must be continuous to be successful, as reaction would favour the dilatation of the vessels. If, however, swelling and pain have occurred, or do so in spite of the cold applications, we must alter our treatment. Warm fomentations are indicated, as they render the tissues flaccid, favour exudation, and allay pain; they, too, must be continuous, until the swelling has reached its height; we then wait to see if mischief has ceased and re-absorption is possible. If not, and pus is forming, we continue the heat and moisture till the matter is freely discharged, when we again abandon it. Once matter has a free escape no application is worse than heat and moisture, as such only keeps surrounding parts in a state of congestion and favours sloughing. Heat and cold are very valuable agents in the treatment of inflammation, but equally injurious if used at the wrong stage. If great pain is present, we may add to our fomentation some anodyne, as opium.

The use of astringents is only indicated in the congestive stage, when they are valuable additions to cold. They must not be used too strong, or reaction may occur.

Should swelling, as the result of effusion, remain after the acute symptoms have passed away, we must favour absorption by increasing the flow of blood in the part, as by hand-rubbing, mild stimulants, or even blisters.

Homœopathy.

MARVELLOUS INDEED!

DR. ACWORTH, of Brighton, is a homœopathic physician of considerable repute, and he is, besides, a very able writer and controversialist. Not long ago it was our pleasure to refer to a long article of his published in the *British Journal of Homœopathy*, in which he most vigorously and cleverly attacked the position occupied by the medical profession generally as defenders of the Contagious Diseases Act. His articles invariably show that he can think as well as write, and it was, therefore, with the anticipation of pleasure that we turned to a paper by him in the current number of the quarterly journal to which we have referred, entitled, "Account of Count Mattei's Marvellous Medicines." When we have laid before our readers an abstract of the doctor's paper, they will, we think, like us, wonder what can have induced him to lay aside his wits so completely as he must have done when he posted this extraordinary confession of credulity to the editor of the *British Journal of Homœopathy*. In justice to the latter, we should add that a comment is affixed to the article, indicating as strong dissent from Dr. Acworth's conclusions as we can ourselves express.

Count Cæsar Mattei, we are told, is a wealthy nobleman of Bologna. He is an amateur physician, and having thoroughly studied the art of healing, throwing into it all his heart and soul, has now mastered it to such an extent as to leave far behind all the attainments and successes of every other school of medicine which has ever existed. His discovery consists of seven medicines for internal administration, and four for external application. The former are described as follows:—Number 1 cures all manner of coughs, catarrhal and bronchial affections, and incipient phthisis; 2 is a specific for intermittent fevers, and very useful in cases of typhus; 3 sets right the circulating system if disordered, certain diseases of the heart, hæmoptysis, and many other complaints; 4 is termed *Anti-canceroso*—this is one of the most completely triumphant of the series: "Count Mattei counts his cures (of cancer) by scores;" 5 is *Anti-scrofuloso*; 6, *Anti-venereo*; 7, *Anti-verminoso*. (The last is a vermifuge, not a vermin-killer). This completes the materia medica as far as internal remedies are concerned. The doses are homœopathic, and the Count has found that the more infinitesimal the dose, the more wonderful is the effect. But the external remedies are by far the most miraculous. We said they were four; in reality, they are only one in kind, but are supplied in four degrees of strength, distinguished by various colours. Now the internal medicines are secret; the Count, for some philanthropic motive which we do not quite understand, has sworn not to reveal the mode of preparation, "till their virtues shall be universally acknowledged, and allowed to be superior to those of any now in use." But with the application he is less reticent; there is no secret about this: it is simply liquid electricity! It is quite immaterial to therapeutics, though it would be interesting from a scientific point of view, to be told how this electricity is got into the fluid state. Dr. Acworth has some of the marvellous article in his possession, and yet all the description of its physical properties which he vouchsafes to an inquiring world is that it is "a colourless fluid." The weakest kind sent out by the Count is of this natural colour, but it may be had more condensed, and is tinted red, green, or yellow, to distinguish the various stages of strength. The yellow is a dreadful thing to have about you; we presume it is the essence of forked lightning; and we are cautioned under no circumstances to apply it to the head.

This, then, is a summary of the clumsy piece of quackery which Count Mattei wants to introduce to the world. He has succeeded in catching a respectable English physican to trumpet forth the virtues of his medicines and of himself, but though we believe the depths of human credulity have never yet been fathomed, we very much doubt whether Count Mattei is clever enough to secure many more believers in England.

We have given a general sketch of the system; now let us see on what evidence it has commended itself to Dr. Acworth. First, he assures us the Count has no mercenary motives. He is wealthy, and has built a hospital in Bologna especially to employ these medicines. When he first commenced to introduce them, he gave them away, and Dr. Acworth seems to think he intended to persist in this suicidal course, if it had not been for the conduct of certain wicked chemists who took advantage of the Count's liberality. "So now, to prevent their being tampered with, the medicines are sold in globules at such low price that the poor can easily obtain them." Afterwards, we learn that the Electricity is sold at 100 francs the litre, which, we expect, helps to defray the expenses of the hospital. Now, though all this looks very much like an almost old-fashioned way of getting a living, we must admit that the proof of the pudding is in the eating, and here we confess that the Count and the Doctor together are too many for us. We cannot controvert their statements, and we may add that we have no wish to do so. Most sincerely do we hope they may turn out true, and that the medicines will prove as miraculous as they are professed to be. Gladly will we snuff out our candle in the presence of such a glorious light; indeed, we shall be compelled so to do, for chemists and druggists will be as extinct as mastodons. Dr. Acworth says he has a little book containing particulars of 150 cases of cure of diseases, many of which were deemed incurable, and these were selected from some twenty thousand cured at the hospital already

mentioned between June, 1865, and October, 1867. Here is an instance: "*Paralysis.*—One case of seven years' standing cured in the short space of a little month (what's that?), by using the Electricity, and taking Anti-angiotico and Anti-scrofuloso." After a few pages of this rubbish, Dr. Acworth avers his perfect confidence in all that has been asserted, and then proceeds to give his own experience which has brought him to this happy belief. We cannot go into these cases; they are most marvellous cures; and Dr. Acworth is a perfectly honourable man. He does not mention any single instance of failure, and, as he is writing a strictly scientific paper, we presume he would have told us if such had occurred. This part of the narrative is quite mysterious to us, therefore, and fixes us on the horns of a very awkward dilemma; we must either question Dr. Acworth's judgment, or we must believe in Count Mattei and his marvellous medicines as he does. We do not wish to be discourteous; we decline to be green; and therefore we shall draw no conclusions. But in all seriousness we ask Dr. Acworth, if he still retains his faith in the "Marvellous Medicines," to let us have a sample of the "Electricity" (yellow preferred), and if we find it half as good as he says it is, we will give it an advertisement next month, which shall raise the Count and the Doctor to the very pinnacle of fame.

THE A. B. C. PROCESS.

THE most tantalizing problem of the age is, what to do with our sewage? Throw it away is a very simple answer, but not the less a very stupid one. Nevertheless, it is exactly the very thing which nearly all over the country we are still doing, and doing, too, in the most stupid manner possible, though chemists and philosophers and statesmen have been for years cogitating and endeavouring to hatch into life some system whereby it may be more sensibly disposed of. What is the land's meat is the water's poison in this case at least, and yet we still continue, as a rule, to poison our rivers and pollute our seas with the nourishment for which the land starves. The only satisfactory gleam of hope we can find in all this, is the universal dissatisfaction with our present attainments in the disposal of sewage which we meet with on every hand. Although it is a hackneyed subject, it is certainly well that the press should continually hammer at it, in the hope that some day, when it is decided whether we shall believe finally in Biogenesis or Abiogenesis, our *savants* will turn their attention in all serious earnestness to this most important economico-scientific question.

Among the many attempts to solve the difficult problem, the A. B. C. process has taken the fancy of the public perhaps more than any other. In theory it is exceedingly pretty, and the Company introducing it, or at least certain advocates of the process, have wisely traced its origin as far back as the days of Moses, thus giving it an unquestionable prestige. The "A. B. C." mixture is so named from the initials of the three most important ingredients in it—alum, blood and clay. Charcoal and Epsom salts are also used in certain proportions, but the blood is the chief novelty employed, and it is also claimed that it is from this that much of the virtue is derived. Works on this system are now established at Leamington and Hastings, and we believe are in course of erection at Southampton and Leeds. About three months ago, a party of gentlemen connected with the metropolitan press, ourselves among the rest, visited Hastings, in order to have the opportunity of seeing the working, and to some extent judging the value of a process which seemed likely to come into general use. This visit gave general, we may say for the time, unanimous satisfaction. Everything was explained with the utmost freedom, and the experiments witnessed were remarkably conclusive. The question of questions, however, still remained behind. Did this process actually deposit that portion of the sewage which was at once valuable and injurious? This could only be solved by direct experiment; but the directors of the Company assured us that the demand for the manure thus extracted had so greatly increased, that they had found themselves able to raise the price gradually from their original figure £3, to £5 per ton, at which quotation they could dispose of as much as they could produce, the gross cost of production being not more than 30s. per ton. This looked like success, for farmers are not generally considered to be peculiarly enthusiastic with regard to new scientific processes. However, sample bags containing 1 cwt. were forwarded to each of us, with a request that we would make fair trial of it. We arranged to do so, hoping that thereby we should be able to advocate the still further extension of a system which promised so much. A practical farmer of our acquaintance kindly undertook to test it for us, and he carried out the experiment with the utmost care.

At that time he was about to sow a fifteen-acre field with rape, dressed with Lawes' Superphosphate. A square patch near the middle of the field, measuring about a rood, was marked out for the "A. B. C.," and a larger proportion of this was employed in order that the two might be tested value for value. A long course of dry weather intervening, the observation of the results was much delayed, and in the meantime we became prepared for failure, by reading the special report on the process issued by the Rivers' Pollution Commissioners. Their calculations made it appear that the market value could not be much more than 30s. per ton, but Dr. Odling, who analyzed the manure itself, estimated it as being worth only one-twenty-fourth the value of guano. This is much less than half the estimate just given, and even this did not take into consideration the fact that concentrated manure could be conveyed at the same rate as that more diluted; and this, therefore, must be reckoned still further to reduce the market price. We have recently visited the field where our sample was sown, and a long way off, the "A. B. C." patch was readily distinguished by its apparent barrenness. On a closer examination, we found that the plants surrounding this little square were, on an average, about three times the size of those which had sprung up there; and in certain spots where it was evident that for a few yards, Lawes' manure had been missed altogether, the plants were generally of a size almost exactly corresponding to "ours." This is a simple statement of fact; we should have much preferred to have reported more favourably, if truth would have allowed it. As far as we can judge, the sewage problem still remains a question for the future.

OZOKERIT.

IF we could have printed in our last issue the information which we now propose to give, the CHEMIST AND DRUGGIST for that month would have been worth its weight in gold. At that time the Ozokerit problem was fairly dividing with the European war the attention of the public, and perhaps at every table in the land where a newspaper ever finds its way, guesses were made as to the character of the mysterious stranger. Certainly the annals of advertising record no parallel to the skill and courage combined, whereby Messrs. J. C. and J. Field have introduced their new candles to the public. Something was required beside skill and courage, however; the estimates of Messrs. Field's expenditure during the three months of suspense which they occasioned us, made by those clever people who know all about the business of others, varying from £20,000 to £60,000. It was, says a witty daily contemporary, "a s-*candle*-ous if not a *wicked* proceeding."

We may at once assume that the printed history of ozokerit, as far as advertisements have revealed it, is familiar to all our readers; what we wish to do is to supplement this with the information gathered from a personal inspection of the manufacture, and which we think has a special interest for chemists.

Ozokerit is a mineral substance, chemically a hydrocarbon, found chiefly in Moldavia and on the shores of the Caspian Sea. It is a singular fact that specimens of this very substance have been lying in some of our museums for years,

labelled with the name, and yet attracting so little attention that it perhaps never occurred to the most industrious curiosity-searcher, when he saw the title advertised, that he had heard of it before. But no commercial use seems to have been made of the substance until Messrs. Field, attracted by noticing its brilliant light when burned, decided to experiment on it with the object of making candles. To all appearance this was a most unpromising idea. The ozokerit in its natural state is a dirty brownish-black mass, and the public have been so luxuriously educated in the matter of illumination, that nothing but a very handsome candle can compete with the lights of the present day. The success of the enterprise has, however, been perfect. By sundry processes of distillation and purification, a beautiful white, hard, waxy substance is produced handsomer than spermaceti, not so transparent as paraffine, but possessing a brilliant gloss, and melting at a temperature of 140° Fahr. This high melting point (paraffine being about 125° and stearine 130°) allows the employment of a larger wick, and this, combined with the naturally brilliant light of the ozokerit itself, makes the candles burn with a brightness exceeding that of any now used. Although at the present moment all Messrs. Field's time is occupied with the preparation of the purified ozokerit for candles, there can be no doubt that more is to be got from the raw material than is yet discovered. A black residue is left in the stills somewhat resembling cannel coal, and this looks very rich in unrevealed chemical secrets. An oil, too, is abundantly pressed from the mass after the first purification, which we doubt not, will soon find its place in the world. Altogether, we are inclined to rate the discovery and utilization of ozokerit as of no mean importance in the scientific as well as in the commercial world. The name, we may add, is derived from Greek words signifying a substance smelling of wax.

The demand for the candles is enormous, more than realising Messrs. Field's anticipations. Separate works have been established for the exclusive manufacture of the new material, and there the mineral lies in hundreds of tons. The candles themselves are prepared at the old factory in Lambeth, where we also saw paraffine, stearine, wax, sperm, and other candles being turned out in all conceivable styles, some of them of great beauty, and in quantities which we fear to repeat. In one room, where the wax candles were made, we saw them varying in size from the $\frac{1}{180}$th of a pound to the religious size of 15 lb. each. In other rooms the manufacture of Messrs Field's well-known United Service and other soaps was proceeding, and in all the processes there was evident the most scrupulous regard to cleanliness and excellent finish. Besides ozokerit, Messrs. Field have another novelty in candles for the winter, which they appropriately designate the "King Alfred." These candles are divided by stripes, and figured in colours, each section indicating an hour. The work involved in the carrying out of this design is immense, it being necessary to finish each candle separately by hand. We must here close our notice, though there are many other interesting points in the candle manufacture which might have been enlarged upon if space would have permitted.

CHLORALUM.

We mentioned last month that we should make certain experiments with this new antiseptic and disinfectant. As well as we can at present judge—and we have been very careful to arrive at a correct conclusion—chloralum possesses really marvellous antiseptic properties. It is superior in this respect to chloride of zinc, and is not poisonous. A piece of meat, smelling very offensively, soaked in a solution of chloralum, was rendered comparatively sweet in an hour. We confess that we were not so fully satisfied in trying it on drains. It was not by any means a failure, but its action did not seem so prompt as that of carbolic acid. It is sure to be a useful article, but much more extensive experiments are required to appraise its exact value. Referring to the name, which we said last month we could not consider a good one, in consequence of its apparent identity with chloral, Professor Gamgee writes us :—

"With the permission of Dr. Fergus, I send you copy of a letter which will probably satisfy those of your readers who believe that with 'Chloral' and 'Chloralum,' as the names of two medicinal agents, we might fear lest 'the sewers might be narcotized and our sleepless people disinfected.' The suggestion will be carried out as far as possible."

Dr. Fergus says :—

"I have read with great interest the accounts of the chloride of aluminium. I think that the name you have adopted is unexceptionable, if its proper pronunciation can be secured. This may be effected by writing the name as a double word ; chlor-alum would obviate all confusion."

WARREN'S SWEET ESSENCE OF RENNET.

We have much pleasure in recommending this article, which is evidently prepared in a different manner to the ordinary essences of Rennet, which, as many of our readers in the cheese districts know, are often very unreliable preparations. This article seems, from the flavour, to have been made with glycerine, which gives it a sweet taste, and evidently is a vehicle well adapted for the extraction and preservation of the chemicals from the calf's stomach which form the rennet. There is no salt nor dilute acid added to this preparation, we are told, and this is certified by Dr. Cameron, of Dublin. Messrs. McMaster, Hodgson, and Co., of that city, are introducing it.

REVIEWS.

BOTANY.*

We turn with pleasure to the re-issue of this little book, the author's name being a sufficient guarantee of excellence. It is intended, as the title indicates, to convey the first lessons of botany to youth, and it is clearly and intelligibly written. The pronunciation of botanic names is carefully accented. The elementary organs of plants form the subject of the first chapter, such as cellular tissue, woody and vascular tissue, spiral vessels and ducts. Next in order are described the parts of plants containing that class of information, which to the surprise of an examiner, proves a stumbling-block to gentlemen of a medified persuasion. The root with its varieties; the stem, the leaves with their numerous shapes, bracts and stipules; the flower with its pistils, stamens, calyx, and corolla; the terms of inflorescence including the spike, catkin, raceme, panicle, umbel, cyme and corymb; finally, the fruit and seed are in turn defined and figured.

By natural sequence, we are led to the study of the great divisions of plants, and learn the mysteries of monocotyledonous and dicotyledonous stems. Thus, having acquired the grammar of the science, we come to classification and botanical division. Various standards of grouping and comparison have been from time to time adopted. Some botanists chose the flower, others the fruit, until Linnæus fixed on the number of the stamens and pistils contained in each flower, a plan not entirely rejected up to this day. This system is called artificial, as by its means plants are thrown together which have no natural analogy. A complete table of the Linnean classes and orders is appended. The natural system, founded by Jussieu, is so called

* Mrs. London's First Book of Botany. New edition, revised and enlarged by David Wooster. Bell and Daldy, York Street, Covent Garden, 1870.

"because the plants thrown together by it, agree not only in their parts of fructification, but in their general appearance, habits and properties, and thus seem naturally allied even to those totally unacquainted with botany." It has undergone several modifications, specially by De Candolle, whose arrangement has alone been followed in this volume. For further detail, we must leave the student to the manual itself. The whole of the natural orders are described in a popular manner: the illustrations are numerous and good, and this revised edition may confidently be recommended to those who are entering on the delightful study about which it treats.

ANALYTICAL CHEMISTRY.*

In a short notice which we published some months ago of this edition of Professor Galloway's well-known "Manual of Qualitative Analysis," we promised some further observations, which have been unavoidably delayed.

The general plan of the work remains unaltered, but the new notation has been adopted, and the nomenclature is in keeping with that employed by most modern authors. The author has adopted a briefer, and at the same time more comprehensive and instructive mode of expression, by the general use of formulæ instead of names. There are some objections to this plan, but they are of minor importance compared with the advantages which it possesses in making chemical reactions more intelligible, and in saving a considerable amount of space. An important improvement has been effected by the introduction of full descriptions of the properties of the metals belonging to each group, their oxides and chief salts, such as the sulphides, chlorides, nitrates, and sulphates, with their modes of preparation. By this means the student can not only contrast the properties of the substances with which he has to deal, and thus be enabled to devise his own methods of analysis, but he can also pursue other experimental inquiries, and become familiarized with synthetical as well as analytical operations, an end which not only merits but demands attainment by those who study chemistry for the sake of employing it in the arts and in manufacturing processes. This feature is one which will lead to a still more general adoption of Mr. Galloway's work as a class-book. Analytical chemistry is too often taught merely that the student may know how to detect and separate certain substances under very limited conditions, and there is so little importance attached to instruction in those properties of substances which are not of primary importance from an analytical point of view, that in actual practice the occurrence of peculiar or exceptional circumstances often proves very puzzling. But to those who have learned to exercise their own ingenuity, and who possess such a general knowledge of the chemical properties of matter as the pages before us are calculated to impart, such occurrences are not likely to produce much embarrassment. The general characters of the salts of each group are also described. They include the colour, both in the solid state and in solution, solubility, behaviour on ignition, etc., and special notice is made of characteristic reactions. Bunsen's flame reactions have been given, and the method of examination in the various parts of the flame described. The description of the flame and of the apparatus required for the experiments is accompanied by an excellent plate. The author has rendered the book more suitable as a manual for the medical student, and as a companion in the study of chemical toxicology, by the introduction of methods for the detection of poisonous metals and radicals in the presence of organic matter; and the part of the work devoted to that important class of bodies, the alkaloids, has been greatly improved by the description of additional methods for their detection. Systematic methods are also given for the detection of the poisonous alkaloids in organic mixtures. The index with which the work concludes is an important and valuable addition. But the most decided improvement which characterizes this edition, and enhances its value as a student's manual, is the introduction of examination questions in practical chemistry. Many of these questions are, as the author observes, "of an entirely new character." They are all of a practical nature, and are well adapted for exercising the reasoning powers of the student. The author very justly condemns the too general use of memory questions at chemical examinations, on account of the encouragement thus given to the practice of cramming; he has accordingly adopted the plan of giving questions, few of which can be properly answered by this system, but requiring that thorough knowledge of the subjects to which they refer only attainable by a logical study of the science. As a rule, the student will not find direct answers to these questions, and accordingly they constitute a searching test of his proficiency in the subjects which they follow. In answering them, he is not merely obliged to remember, but to reason, and he is certain to find out whether or not his comprehension of the subject enables him to turn his knowledge to a practical account. The student whose studies are not regulated by proper supervision, is very apt to have but imperfect means of discriminating between what he really knows and what he does not know. This arises, to a great extent, from indulgence in that propensity for hurrying on too rapidly, and in ignorance to something new, a propensity difficult to control, especially in young students; but which, we believe, Mr. Galloway's questions are well calculated to check. It is scarcely possible to lay too much stress on the necessity that exists for the thorough exercise of the reasoning powers of the student. A fact committed to memory, merely as such, is far less likely to be retained than when it is stored by, as one of the links in a chain of causes and effects; but to teach in this way, the student should be taught how to observe, and encouraged to strike out his own plans, for observing and inventing aid largely in the cultivation of originality of thought. There is scarcely any science better adapted for the development of these qualities than that of chemistry, and it is better untaught than taught in such a manner that its best features are neglected. We regard the system of teaching the science, which Mr. Galloway was one of the first to adopt, and which he has further developed in this edition of his "Manual of Qualitative Analysis," as sound and philosophical, and we can heartily recommend this book as being what it professes to be—a student's book.

* A Manual of Qualitative Analysis. By Robert Galloway, F.C.S., etc. Fifth edition. London: Churchill.

Corner for Students.

CONDUCTED BY RICHARD J. MOSS.

The chemical formulæ employed in this section are based upon the new system of atomic weights, unless the use of the older system is specially indicated. In the *British Pharmacopœia* the symbols corresponding to those adopted here are printed in heavy Clarendon type. The new editions of Fownes's *Manual of Chemistry*, and Attfield's *Chemistry: General, Medical, and Pharmaceutical*, supply the data required for calculations, and are recommended as text-books.

QUESTIONS.

First Division.

I. Qualitative Analysis.—Describe a process for the examination of urine for albumen.

II. Digitalinum, *B.P.*—Explain the officinal process for the preparation of this substance.

III. Dialysis.—What is dialysis? What are the distinguishing features of the two classes of substances to which the names crystalloid and colloid are applied?

IV. Hydrosulphuric Acid.—Describe briefly the principal properties of this acid, and of its salts.

V. Specific Gravity.—If 265 grains of a solid be introduced into a bottle holding 700 grains of turpentine, the sp. gr. of which is ·790, and the bottle weighs, after the introduction of the solid, 857·25 grains, what is the sp. gr. of the solid?

Second Division.

I. Emplastrum Plumbi, *B.P.*—Represent, symbolically, the reaction involved in the preparation of this substance by the officinal process.

II. Ferri Arsenias, *B.P.*—Calculate the weight, in ounces, of the theoretical product of the officinal process for the preparation of this salt. For what purpose is the sodium acetate employed in this process?

III. Heat.—Describe the principal phenomena of heat which accompany the change of matter from the solid to the liquid state.

IV. Gas Volume.—Calculate the volume (in litres) of carbon dioxide, at 15° C., and 745 m.m. pressure, produced by the combustion of 5 grammes of carbon (1 litre CO_2 at the staudard temperature and pressure, weighs 1·96664 gram.)

V. Specific Gravity.—A glass ball weighs 1 gram. in air, ·636 of a gram. in water, and ·712 of a gram. in alcohol. What is the weight in grammes of 100 cubic centimetres of the alcohol?

ANSWERS.

First Division.

I. Qualitative Analysis.—The quantities of the three substances present are:—iodine, ·7134 of a gram.; bromine, ·8937 of a gram.; chlorine, ·3095 of a gram.

The first precipitate obtained consisted of silver chloride, bromide, and iodide, and weighed 1·557 gram. The second consisted of silver chloride and bromide, the iodine having been expelled; this precipitate weighed 1·469 gram. The third precipitate consisted of silver chloride alone, and weighed 1·220 gram. We have, therefore:—

a. AgI + AgBr + AgCl = 1·557.
b. AgBr + AgBr + AgCl = 1·469.
c. AgCl + AgCl + AgCl = 1·220.

Deducting *b.* from *a.*, we have (1·557—1·469=) ·088, which represents the loss in weight arising from the substitution of bromine for iodine; but one equivalent of bromino (80) displaces one equivalent of iodine (127), thus causing a loss of (127—80=) 47 parts by weight; therefore, the weight of iodine that would cause a loss of ·088 of a gram. is found by the proportion,

$$47 : ·088 = 127 : x \therefore x = ·2378.$$

Deducting *c.* from *a.*, we have (1·557—1·220=) ·337, which represents the loss in weight due to the substitution of chlorine for bromine and iodine; but it has been found that the proportion of iodine present is ·2378 of a gram., and it is evident that the substitution of chlorine for this weight of iodine would involve a loss of ·1713 of a gram.; according to the following proportion, the difference between the atomic weight of iodine and chlorine being 91·5—

$$127 : ·2378 = 91·5 : x \therefore x = ·1713.$$

Therefore, the loss in weight due to the displacement of bromine by chlorine was (·337 — ·1713 =) ·1657 of a gram., and as the difference between the atomic weights of these substances is 44·5, the quantity of bromine present is found by the proportion—

$$44·5 : ·1657 = 80 : x \therefore x = ·29785.$$

Now, the quantity of iodine found was ·2378 of a gram., which is equal to ·44 of a gram. of silver iodide (235), thus—

$$127 : ·2378 = 235 : x \therefore x = ·44.$$

In a similar manner the quantity of silver bromide in the first precipitate is found to be ·6999 of a gram., thus—

$$80 : ·2979 = 188 : x \therefore x = ·6999.$$

Deducting the sum of these two weights from the total weight of the precipitate, we have (1·557 — (·44 + ·7)=) ·417 of a gram. as the weight of silver chloride present, then, its molecular weight being 143·5, the quantity of chlorine is ascertained by the following proportion:—

$$143·5 : ·417 = 35·5 : x \therefore x = ·10317.$$

These results correspond with the above-mentioned weights when multiplied by three, the precipitates having each been obtained from one-third of the original solution.

II. Chemical Toxicology.—The examination for oxalic acid may be conducted as follows:—The mixture, if not already clear, should be filtered, then, having observed the reaction of the filtrate with test paper, add a solution of lead acetate until it ceases to give a precipitate. Filter, wash the precipitate, and suspend it in a small quantity of water, then pass hydrogen sulphuretted through the mixture until it smells distinctly of the gas, after having been agitated. By this means the lead oxalate, if present, is decomposed, insoluble lead sulphide being precipitated, and oxalic acid liberated; the former substance should be removed by filtration, and the clear liquid boiled until the hydrogen sulphuretted is expelled. Then add a solution of sodium carbonate, and boil for some time, subsequently filtering and acidifying the filtrate with acetic acid, and then adding to it a solution of calcium sulphate. If oxalic acid is present, a white precipitate of calcium oxalate, soluble in hydrochloric acid, will be produced.

III. Tannic Acid.—The following officinal substances owe their astringent properties to tannic acid:—Belæ Fructus, Catechu Pallidum, Galla, Granati Radicis Cortex, Hæmatoxyli Lignum, Kino, Krameriæ Radix, Quercus Cortex, Ulmi Cortex, and Uvæ Ursi Folia.

IV. Hydrofluoric Acid.—This acid may be obtained by gently heating powdered fluor spar (CaF_2) with strong sulphuric acid in a leaden retort, to which is attached a receiver of the same metal, kept as cold as possible. Thus obtained, the acid is a volatile, strongly acid, and corrosive liquid, fuming copiously in the air. It brought in contact with the skin it causes malignant sores, which are not easily healed. The property which hydrofluoric acid possesses of dissolving silica, and otherwise insoluble silicates, distinguishes it from all other acids. It combines with water with great violence, producing a solution which attacks glass with great facility.

To detect this acid in compounds not decomposable by sulphuric acid, they must first be fused with about four parts of a mixture of sodium and potassium carbonates. The fused mass is treated with water, the solution filtered, the filtrate concentrated by evaporation, allowed to cool, transferred to a platinum or silver vessel, hydrochloric acid added to feebly acid reaction, and the fluid let stand until the carbon dioxide has escaped. It is then supersaturated with ammonia, heated, filtered into a bottle, calcium chloride added to the still hot fluid, the bottle closed, and allowed to stand at rest. If a precipitate (CaF_2) separates, after some time it is collected on a filter, dried, then heated in a platinum crucible with concentrated sulphuric acid, the crucible covered with the convex face of a watch glass, coated on that side with beeswax, which has been removed again in some places by tracing lines in it with a pointed instrument, the hollow of the glass being filled with water. If hydrofluoric acid was present the exposed lines will, upon the removal of the wax, be found etched into the glass.

V. Specific Gravity.—The specific gravity of the mixture is 14·710, thus—

$$\frac{5 + 3}{\frac{5}{19·35} + \frac{3}{10·51}} = 14·710.$$

Second Division

I. Cerii Oxalas, *B. P.*—When cerous oxalate is exposed to a dull red heat it gives off water, carbon monoxide, and carbon dioxide, and leaves a salmon-coloured mixture of ceroso-ceric oxide, with a trace of cerium carbide; a small quantity of didymium is usually present in the commercial salt, and gives a reddish-brown colour to the residue. The solubility of this residue without effervescence in hydrochloric acid, indicates the absence of metals whose carbonates are not decomposed at a red heat, such as potassium, sodium, barium, strontium, and calcium. The addition of potassium sulphate to the hydrochloric acid solution, causes the precipitation of a double cerium and potassium sulphate ($Ce_2K_2(SO_4)_3$). When the salt is boiled with a solution of potassium hydrate and filtered, the filtrate does not give a precipitate with an excess of ammonium chloride, proving the absence of aluminum, which, if present, would yield a white flocculent precipitate of aluminum hydrate. The precipitate produced by the addition of calcium chloride to this mixture, after the addition of an excess of acetic acid, consists of calcium oxalate, which dissolves in hydrochloric acid. The absence of foreign matter in general is indicated by the loss of weight when the salt is incinerated, not being much more or less than 52 per cent., that being the loss which the pure salt undergoes.

II. Hydrargyri Iodidum Rubrum.—The theoretical product of the officinal process for the preparation of this substance is 6·701 ounces. The reaction which takes place may be represented thus—

$$HgCl_2 + 2KI = HgI_2 + 2KCl.$$

Substituting the molecular weights of these substances for their formulæ, we have 271 + 332 = 454 + 149. But the quantities employed are, 4 ounces of mercuric chloride to 5 ounces of potassium iodide, the latter substance being slightly in excess, so that the product must be calculated from the former; we have therefore—

$$271 : 4 = 454 : x \therefore x = 6·701.$$

THERMOMETERS.—The thermometric scale at present most employed in England is that proposed by Fahrenhoit, whose name it bears. For the zero of this scale, the lowest temperature known to exist at the time was adopted, and 32° was taken as the freezing point of water. The interval between this point and that at which water boils was divided into 180°, the boiling point of water was therefore 212°. The scale proposed by Celcis is now very generally used, being the principal one employed on the Continent and in America. In this scale the freezing point of water is zero, and the boiling point 100°, from which arrangement it has received the name Centigrade. Another scale, the use of which is almost entirely confined to part of Germany and Russia, is that proposed by Réaumur; according to it the freezing point of water is zero, and its boiling point 80°. To convert degrees of the Fahrenheit scale into those of the Centigrade, if the temperature is above 32° we have the formula, $C = (F - 32) \div 9 \times 5$. If the temperature is below 32° but above 0°, then, $C = (32 - F) \div 9 \times 5$. If it is below 0° F., we have, $C = (F + 32) \div 9 \times 5$. For the conversion of Réaumur's degrees into Centigrade, it is only necessary to divide by 4 and multiply by 5.

IV. GAS VOLUME.—The weight of the litre of hydrogen at 25° C. is ·08209 of a gramme. The weight of the litre at 0° C. is ·08961 of a gramme, and for every degree that the temperature is raised, the volume of the gas increases by $\frac{1}{273}$, consequently a corresponding decrease in weight takes place. The weight is therefore found by the following proportion—

$$273 + 25 : 273 = \cdot08961 : x \therefore x = \cdot08209.$$

SPECIFIC GRAVITY.—The specific gravity of the solution is 1·232. The difference between the weight of the piece of metal *in vacuo* and its weight in water, viz. (14—12·15) 1·85 grams., represents the weight of a quantity of water equal in volume to the metal; but the metal displaces equal volumes of both liquids, therefore (14 — 11·72 =) 2 28 grams. of the potassium sulphate solution correspond in volume with 1·85 grams. of water, and $\frac{2 \cdot 28}{1 \cdot 85} = 1 \cdot 232$, the sp. gr. of the solution.

PRIZES.

The First Prize for the best answers to the questions of the First Division printed in our September number has been awarded to

RICHARD W. GRIFFITH (B. P.), 146, High-st., Southampton,

to whom a similar prize was awarded in May.

The Second Prize for the best answers to the questions of the Second Division has been awarded to

J. EDGILL, Frimley, Surrey.

Marks awarded for Answers.

First Division.

	I.	II.	III.	IV.	V.	E.	Total.
B. P. (*1st prize*)	10	5	5	7	5	4	36
J. W. Smith	10	5	5	7	0	3	30
J. H. Watson	10	5	4	6	0	3	28
Nil sine labore	8	4	5	7	0		27
Otho	4	5	5	5	4		26
J. Young	0	5	5	6	5	3	4
J. S. P.	0	5	5	5	5	3	
J. S. E.	2	4	5	7	0	2	
Beta	0	4	4	2	0	2	
J. Kitchen	0	1	5	5	0	0	

Second Division.

	I.	II.	III.	IV.	V.	E.	Total.
J. Edgill (*2nd prize*) ..	5	5	5	5	4	3	27
Spes	5	4	5	4	4	3	25
Anthemis	5	1	5	1	4	2	18
Limax	2	1	4	3	4	3	17
Ambulator	4	0	4	3	3	2	16
J. Croghan	0	0	5	5	2	2	14
W. J. Smith	3	–	4	5	0	1	13
J. G.	0	2	4	0	4	1	11

TO CORRESPONDENTS.

*** All questions forwarded to us for publication in this "Corner for Students" should be accompanied by the answers which the propounders believe to be correct. Communications should include the names and addresses of the writers; those which reach us after the first day of the month will be disregarded.

Prizes.—The students to whom prizes are awarded are requested to write at once to the publisher naming the book they select, and stating how they wish it forwarded.

J. H. Watson.—V. The volumes of the metals are not given in this question. It is stated that the mixture consists of five parts *by weight* of gold and three of silver. In Question V. of the June number, the proportion by volume was given.

J. Young.—I. You quite overlook the fact that when the iodine and bromine are expelled, an equivalent of chlorine is left, which, of course, must not be confounded with that originally present in the solution. V. It is generally necessary to carry the fraction to six or seven decimal places throughout the calculation, in order to be certain what figure should be in the third decimal place of the result.

J. S. P.—I. When the iodine is expelled by the addition of bromine, the precipitate obtained does not consist of silver in combination with the bromine and chlorine originally present alone, but includes also a quantity of bromine, equivalent to the expelled iodine. In like manner, it must be borne in mind that, although the third precipitate contained neither iodine nor bromine, yet it contained considerably more chlorine than was originally present, the excess being exactly equivalent to the iodine and bromine in the first precipitate.

Beta.—IV. It would be necessary to have the substance in solution in order to apply the barium nitrate test.

Anthemis.—You should give particulars of arithmetical operations sufficient to show by what method your answer is obtained.

J. Croghan.—I. All oxalates are decomposed by ignition, so that it is not an oxalate that is dissolved in the hydrochloric acid. In the Pharmacopœia there is no reference made to a loss in weight in the potassium hydrate solution; it is not usual for one solution to lose weight when another solution is added to it, except, perhaps, you call the formation of a precipitate or the evolution of gas a loss in weight. II. Your method is very defective, it is based on the erroneous supposition that the substances are mixed in exact chemical proportions.

Books offered as First Prizes.

Attfield's *Chemistry: General, Medical, and Pharmaceutical.* (Van Voorst.)
Brooke's *Elements of Natural Philosophy* (Churchill.)
Conington's *Handbook of Chemical Analysis;* with Tables of Qualitative Analysis adapted to the same. (Longmans.)
Eliot and Storer's *Manual of Inorganic Chemistry.* (Van Voorst.)
Fownes's *Manual of Elementary Chemistry.* (Churchill.)
Fresenius's *Qualitative Analysis.* (Churchill.)
Galloway's *Qualitative Analysis.* (Churchill.)
Ganot and Atkinson's *Elementary Treatise on Physics.* (Longmans.)
Garrod's *Materia Medica;* with Modern Chemical Notation. (Walton.)
Noad's *Chemical Analysis, Qualitative* and *Quantitative.* (Reeve.)
Northcote and Church's *Qualitative Analysis.* (Van Voorst.)
Odling's *Outlines of Chemistry.* (Longmans.)
Royle and Headland's *Materia Medica.* (Churchill.)
Williamson's *Chemistry for Students.* (Clarendon Press)
Barff's *Introduction to Scientific Chemistry.* (Groombridge).

[Any other scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.]

Books offered as Second Prizes.

Bloxam's *Laboratory Teaching.* (Churchill.)
Church's *Guide for tudents in Agricultural Chemistry.* (Van Voorst.)
Galloway's *First tep in Chemistry.* (Churchill.)
Gill's *Chemistry for chools.* (Walton.)
Hofmann's *Introduction to Modern Chemistry.* (Walton.)
Huxley's *Lessons in Elementary Physiology.* (Macmillan.)
Oliver's *Lessons in Elementary Botany.* (Macmillan.)
Orme's *Introduction to the science of Heat.* (Groombridge.)
Potts's *Elements of Euclid.* School Edition. (Longmans.)
Roscoe's *Lessons in Elementary Chemistry.* (Macmillan.)
Wormell's *Elementary Course of Mechanics.* (Groombridge.)
Wurtz's *History of Chemical Theory.* Translated by Watts. (Macmillan).

[Any other scientific book which is sold for about five shillings may be taken as a second prize.]

LONDON CHEMISTS' ASSOCIATION.

THE first meeting of the present session was held on Thursday, October 6th, when Mr. Sands, the President, delivered an opening address. He first traced the history of the Association, remarking that at its commencement it was perhaps more like a club than anything else; its meetings, however, soon assumed a scientific character, and the papers read at them became more and more original. In noticing the change in the name of the Association, the President said that though it was now called the "London Chemists' Association," it could not be asserted that it represented the chemists of London—the Pharmaceutical Society was supposed to do that; but he had no doubt that the Association would soon become a greater favourite, and with an addition to its numbers it would be possible to remove it to private rooms, and the Association would consequently gain a still better reputation than it already has. The President proceeded to make some remarks upon the conduct of the Association and gave a *résumé* of the work of the past session. He then alluded to the operation of the Pharmacy Act, and to the attempt to introduce regulations for the arrangement of chemist's dispensaries. He did not think that safety would be ensured by having cupboards difficult to open, or by the use of bottles of wonderful construction, or by any mere mechanical arrangement. The use and

abuse of the poison label was next noticed. Mr. Sands said that he had lately observed it frequently attached to bottles containing very harmless preparations—as lotions, consisting of a few grains of acetate of lead dissolved in water, or a few grains of sulphate of zinc in rose water. He thought it was absurd to make such an indiscriminate use of the word "poison." Where was the distinction between such simple preparations and really dangerous articles? Alluding in very feeling terms to the death of Mr. Porter, he read a letter that he had just received from the bereaved mother, who enclosed a photograph of her late son. The President urged upon those present to do all they could to imitate their late Secretary—working early, late, and continuously to acquire knowledge, not for their own benefit only, but for the good of others also. In conclusion, he hoped the Association would have a prosperous session, and that all who could would avail themselves of the opportunity of attending its meetings, which were free to all who choose to come to them.

A hearty vote of thanks, proposed by Mr. BEYNON and seconded by Mr. LLOYD, was given to the President for his excellent address, after which the members spent some time in examining the different objects on the table, there being a good collection of botanical specimens, some being mounted for the special illustration of structural botany. Some specimens of bismuth were also exhibited, a dispensing desk containing scales, weights, labels, &c., and an arrangement for the holding of prescriptions when in use.

The following are the arrangements for the Thursday evening meetings, from October 6th to December 22nd, 1870, to which members may introduce friends:—Thursday, October 6th, an Address, by Mr. J. Sands; 13th, Mr. J. Bletsoe, on "The Ointments and Confections of the Pharmacopœia;" 20th, Mr. M. Bell, on "The Double and Triple Salts in general use;" 27th, Mr. J. H. Jessop, on "Dietetic Preparations."—Thursday, November 3rd, Mr. R. Pick, on "Belladonna and its Preparations;" 10th, Mr. E. Weaver, on "Some Hydrocarbons used in Pharmacy;" 17th, Mr. G. Brownen, on "The Waste Products of the Pharmacopœia Processes;" 24th, Mr. J. Sands, on "Sulphocarbolates.—Thursday, December 1st, Mr. R. Jewell, on "Hypophosphites;" 8th, Mr. H. A. Taubman, on "Regulations for the Storing and Dispensing of Poisons;" 15th, Mr. E. Beynon, "Dispensing Arrangements." The papers will be followed by discussions. The proceedings will commence on each evening at 9.30.

GAZETTE.

BANKRUPT.

GIBBS, Edwin Mackie, trading as Edwin Gibbs, 7, White's-row, Whitechapel-road, manufacturing chemist.

NOTICES OF FIRST GENERAL MEETING FOR ARRANGEMENTS OR COMPOSITIONS.

BIBBY, Richard Edwin, Haughton, near Denton, manufacturing chemist.
GENT, George, Stratford House, King Henry's-road, Primrose-hill, and 147, Regent's-park-road, chemist and druggist.
GEORGE, Ben Antley, Ystradyfodwg, Glamorgan, chemist and stationer.
HALL, John, Gainsborough, chemist and druggist.
PUADON, Henry, Hirwain, Aberdare, Glamorgan, surgeon and apothecary.
SUTTON, Thomas George, 41, Prescot-street, Liverpool, chemist and druggist.
YATES, John, St. Helen's, veterinary surgeon.

PARTNERSHIPS DISSOLVED.

ALLEN and HANBURYS, Plough-court, Lombard-street, London, chemists and druggists, by retirement of Daniel Hanbury.
BUNYARD, J. B. and Co., Chester-street, East Greenwich, manufacturing chemists. Debts by William Denny Ruck.
CANNAN and Co., Adolphus-street, Wakefield-road, Bradford, washing powder manufacturers and drysalters.
CARTWRIGHT and MOORE, Wolverhampton, surgeons.
DUNKERLEY and CHADWICK, Chadderton Mill, Royton, near Oldham, Lancaster, dyewood grinders. Debts by James Dunkerley, who continues the business.
HANDFORD and LINOS, Knott Mill Wharf, Manchester, drysalters. Debts by John Thomas Lings, who continues the business.
HUGGON and Co., Leeds, photographic chemists. Debts by William Huggon, who continues the business.
MARLEY, John and William MARLEY, trading as John MARLEY, 21, Grainger street, Newcastle-upon-Tyne, chemists and druggists. Debts by William Marley, who continues the business.
MINERAL WATER COMPANY, 199, Richmond-road, Hackney, mineral water manufacturers, as regards George Plumbly. Debts by Harry Plumbly and John Medlicott, who continue the business under the same style.
ROWLEY and DICK, drysalters and commission agents, Glasgow, by the retiral of Mr. Rowley. Mr. Dick continues the business on his own account, under the same firm.
SHANNON and BERAY, Colsterworth, Lincoln, surgeons, &c. Debts by George Berry.

Provincial and Foreign Reports.

[*We shall be glad to receive from all parts of the world items of interest to our readers. Correspondents who favour us with reports of local meetings, etc., will please to condense them as much as possible; and when local newspapers are sent, we shall be glad to have the passage intended for our notice, specially marked.*]

BIRMINGHAM.

PARISH OF BIRMINGHAM.—There were four tenders for drysaltery for this parish, viz.:—Mr. William Sumner, High-street; Mr. Joseph Key Adams, Whittall-street; Mr. Arthur Williams, Broad-street; and Mr. Joseph Gilman, Lancaster-street. Mr. Lewis Jones, of Holt-street, only tendered for whiting and Bath bricks.

	Mr. Sumner.	Mr. Key Adams	Mr. Williams.	Mr. Gilman.	Mr. Jones.
Oak Varnish .. .. .. gall.	7/0	7/0	7/6	8/0	..
Boiled Oil	2/11	2/8	2/10	3/4	..
Lamp Oil as per sample	3/4	3/4	3/4	3/6	..
Shoe Oil ,, ...	4/0	2/4	3/2	2/8	..
Linseed Oil	2/9	2/6	2/7	3/0	..
Olive Oil	6/6	5/6	4/6	6/0	..
Turpentine	2/8	2/5	2/5	3/0	..
Best White Lead .. .. cwt.	26/0	28/0	28/0	30/0	..
Best Red Lead	24/0	22/6	23/0	28/0	..
Yellow Ochre, ground in oil	17/0	15/6	20/0	18/0	..
Venetian Red, ground in oil	17/0	15/6	20/0	18/0	..
Brown Umber, ground in oil	17/0	0/2	0/2½	18/0	..
Raw Sienna, ground in oil	0/7	0/9	0/6	1/0	..
Chrome Yellow	0/7	0/6	0/7	1/0	..
Lime Blue	38/0	28/0	40/0	42/0	..
Roll Brimstone	13/0	11/6	11/6	16/0	..
Patent Dryers	17/0	16/6	18/0	24/0	..
Glue	45/0	42/0	44/0	50/0	..
Pitch	10/0	9/6	11/0	12/0	..
Putty	9/0	8/0	7/6	10/0	..
Alum	8/0	8/0	8/6	12/0	..
Glass Paper (Oakey's) .. .. ream.	11/0	12/6	13/0	12/0	..
Black Lead, Pure Lump, in casks ..	30/0	17/6	28/0	20/0	..
Soft Soap (Scotch), in firkins of 60lb.	12/0	11/3	11/4	12/6	..
Whiting .. .. ton.	31/0	36/0	34/0	30/0	28/0
Bath Bricks 100	8/0	6/6	5/0	10/0	6/0
Black Japan .. .. .. gall.	6/0	5/0	8/6	8/0	..
Russian Tallow .. .. .. cwt.	48/0	48/0	52/0	48/6	..
Oil for Machinery .. .. gall.	4/6	4/4	4/6	4/6	..

The consideration of the above tenders having been referred to the Stores' Committee, that body accepted the whole of them, deciding that where the tender was the lowest the order for the articles required should be given to that contractor, but where they were the same price orders be given to each person tendering in rotation.

BOSTON (U. S.)

AN eminent London pharmacist, now travelling in America, writes thus:—

"The chemists do things in style in Boston: one took me into his laboratory. In the basement below the shop was a large soda-water machine; another for mineral waters; two evaporating pans over a furnace, under a chimney-hood, and enclosed with glass windows, for poisonous fumes; three more, with steam jackets, standing on tripods; a drug-mill, and a six-horse engine. His rent was £1,200 a year, and not in the best part of the city either.

"At another establishment they showed me thirty-six prescription books, of our usual size, full of copied prescriptions, and the thirty-seventh nearly full. They were an old house, and retained the English custom of returning the recipes. The (American) custom is to keep prescriptions and paste them in a book."

HALIFAX.

HALIFAX AND DISTRICT CHEMISTS' AND DRUGGISTS' ASSOCIATION.

THE Winter Session of the above Association was commenced on the 9th ult. by a general meeting of the members at

their room in the Mechanics' Institute, Mr. Stott, Sowerby Bridge, Vice-President, in the chair.

The Chairman, alluding to the severe illness of the President, expressed the great regret which was felt at his continued indisposition, and sincerely hoped an early recovery would take place. The Chairman explained that the Committee had been busy during the summer preparing for an energetic campaign during the winter months.

Messrs. Stott and Farr were next chosen as delegates from the Association to the meeting of the British Pharmaceutical Conference.

The Secretary, Mr. Hebden, then informed the members that the committee had engaged a teacher for botany, and the class which was commenced in the early part of summer would cease at the end of the autumn until the following spring, when it would be resumed. This arrangement was necessary so as not to crowd and confuse too much the studies of their young men. Chemistry and Latin would constitute their studies during the winter, and as the teacher had arranged for a number of meetings early in the summer mornings to give the students practical illustrations of his teaching, a commendable spirit of early rising would not be one of the least benefits accruing from these changes. The popularity of the study of botany amongst their young men was strongly evidenced by the fact that the number of students was double that of the other classes. The Committee had fixed the student's fee at 5s. the term, and as the fee of the teacher and other incidental expenses would amount to much more than would be thus received, and as it was also considered advisable that a prize should be offered at the close of the term for competition, they trusted it would be agreeable to the members that the amount of the deficiency and prize should be paid from the general fund of the Association. In reference to the classes in Chemistry and Latin the Secretary read a letter from Mr. Gibb, the Principal of Haley-hill College, in which was stated the number of students in each class, their regularity of attendance, their success at the College Examinations last May, and the earnestness with which they devoted themselves to their studies. The Latin Class, at the express wish of the students, was now continued throughout the year. The only matters he had to complain of were that the number of students ought to be greater, considering the number of young men connected with the trade in the town, and also against the late business hours, which were a most serious obstacle to successful study.

Mr. Shaw stated his intention to offer a prize in March next for competition in Materia Medica if a reasonable number of competitors offer themselves.

A discussion then followed respecting late business hours, and it was resolved to endeavour to secure the co-operation of all the chemists of the district to close finally at half-past eight every night except Saturday. Discussion on "Uniform Retail Prices" was adjourned until the next meeting.

HAMBURG.

NITRO-GLYCERINE.

M. Nobel, the chief manufacturer of nitro-glycerine, whose factory is in the neighbourhood of Hamburg, has invented a very simple process for making it perfectly harmless. It is wholly deprived of its explosive properties by being mixed with a certain proportion of alcohol. In this condition a rifle bullet may be fired into it, or a percussion cap fired in it, without any effect. If, however, it is exposed to the air for a lengthened period, the spirit will evaporate, and its explosive properties will return. But in hermetically-sealed cases it may be preserved harmless for years. M. Nobel always supplies it mixed in this manner, and it is prepared for use by adding water to it, when, on account of its greater specific gravity, the nitro-glycerine sinks to the bottom of the aqueous solution, which can then be drawn off with the greatest ease. On the other hand, the utmost care is requisite in the manufacture of nitro-glycerine, If it is not pure it quickly decomposes, and will spontaneously explode. But if pure, heat alone will not explode it, unless it be raised above 360 degrees Fahrenheit; and simple contact with fire is so far from exploding it that it may be burned from an ordinary cotton wick like lamp oil. In these points it is safer than either gunpowder or gun-cotton. Either of them may be exploded by a spark, and the latter explodes at a temperature of 277 degrees Fahrenheit. At the same time it requires to be cautiously handled.

MANCHESTER.

MANCHESTER CHEMISTS' ASSOCIATION.

The second annual general meeting of this Association was held in the Memorial Hall, Albert-square, on Friday, October 7th, Mr. W. S. Brown, Vice-President, in the chair.

The Hon. Secretary, Mr. F. B. Benger, read the annual report, which was favourable on the whole, though it stated that the number of members this year was not equal to that of the previous session. The pharmaceutical lectures for the next session are as follows:—Pharmaceutical Latin, Professor Wilkins, M.A., or Mr. Bentley, M.A., Mondays, 3 to 4 p.m. Chemistry, Professor Roscoe, F.R.S., or Dr. Thorpe, Mondays, 4 to 5 p.m. Pharmacy, Mr. Siebold, Wednesdays, 4 to 5 p.m. Materia Medica, Mr. Somers, Wednesdays, 5 to 6 p.m. Botany, Professor Williamson, F.R.S., Wednesdays, 7.30 to 8.30 p.m. The lecture fees are 15s. for one course, £2 for three courses, and £3 for the complete series of five. A laboratory course of Practical Pharmaceutical Chemistry, by Professor Roscoe, F.R.S., and Mr. Schorlemmer, F.C.S., intended for advanced students, fee £4 4s. Considerable additions had been made to the library, and gifts were acknowledged from Messrs. Woolley, of Manchester, Ransome, of Hitchin, T. H. Hills, of London, and J. J. Pyne, of Manchester. The balance-sheet showed a credit to the Association of £73.

In moving the adoption of the Report,

The Chairman, after remarking that he was glad to see such a large attendance of members and friends, whom they cordially welcomed and hoped to include in their ranks, said the Association was formed two years ago, under an impulse communicated by the passing of the Pharmacy Act, 1868, and they had great reason to congratulate themselves upon the continued success which had attended its operations. He thought they had been more successful than they could have anticipated, and certainly when they contrasted their progress with that of kindred associations, Manchester had no reason to be ashamed of the efforts put forth, or with the results attained. (Hear, hear.) These were not only professional but social, and have had many practical outcomes in the experience mutually communicated and the mutual confidence and goodwill established between members of the same business who had previously very little knowledge of each other. Beyond that, and as the principal object of their Association—the education of apprentices and assistants of the present day, who would be the pharmacists of the future—they had every reason for congratulation that in the outset they decided to connect themselves with that noble institution which Manchester had the privilege of possessing, and ought to be exceedingly proud of—Owen's College. (Hear, hear.) The cordial co-operation accorded to them by the trustees of that institution had culminated in the producing for the present session of a course of lectures which he thought would bear comparison even with the Central School in Bloomsbury-square. (Hear, hear.) He believed no other city or town had such a complete course of pharmaceutical education provided at so small a cost. He hoped this state of things would result in a large accession both of members and associates, for it was most important that they should have the encouragement of a large number of members and associates and large attendances, and they looked to their future connection with Owen's College as likely to result in the establishment of an institution to provide pharmaceutical education, and eventually a college of pharmacy which might attain a high position. Efforts made in providing pharmaceutical education had been hitherto principally confined to the parent institution in London, where there was a large and flourishing educational establisment, but that was only available to a few. The application of that kind of education locally had occupied the attention of the governing body, and it was confidently hoped that in a short time a practical scheme would be devised by which assistance could be afforded localities where such advantages as were presented in Manchester were not so available. He trusted that they would be able to do without any extra-

neous aid at all. They had endeavoured to meet all requirements, both of town and country, by the arrangement of their meetings, and he hoped that the appeal they had put forth in the report would bring many new members. Let them not be content with 114 members, but go on till all who were connected with the business became associated. He hoped to see more of their friends of the medical profession, for it was most important that there should not be needless and causeless jealousy. He referred with satisfaction to the state of the library fund, and expected to see it largely increased in the future. The work of the Association, he took it, had not only had a practical effect in their own city but in many places. The action they took when some objectionable regulations with regard to the selling and dispensing of poisons were sought to be forced upon them by legal enactment, was supported by many other kindred institutions, and it resulted in the defeat of an attempt made, without protecting the public in any way, to impose restrictions that were objectionable, and rendered it difficult to carry on the business of a chemist with that freedom and care which had always characterized the trade. (Hear, hear.) In conclusion, he advocated such a shortening of the hours of labour as would allow apprentices and assistants more time for study, and moved the adoption of the report and statement of accounts.

Mr. Slugg seconded the motion, and said he considered the report an admirable one, and that the Association was in a most healthy state.

The report having been adopted, it was announced that Mr. Standring had been compelled, by failing health and inability to attend the meetings, to retire from the office of President. It had been a great advantage to have a gentleman so well known and respected at the head of the Association during its formation.

It was then proposed by Mr. G. S. Woolley, seconded by Mr. Benger, and carried unanimously, that Mr. Brown, whose energy, ability, and zeal were known to the members, be elected President.

The necessary alteration in the bye-laws having been made, Mr. J. T. Slugg, F.R.A.S., and Mr. Wilkinson were elected Vice-Presidents. Messrs. Redford and Hughes were added to the Council list, in place of Messrs. Standring and Bateman, retired. Mr. F. B. Benger and Mr. G. S. Woolley were re-elected Secretary and Treasurer. It was proposed by Mr. Brown, seconded by Mr. Benger, and carried, that Professor Attfield and Mr. T. H. Hills, of London, who had shown much kind interest in the success of the Association, be elected the first honorary members.

The next monthly meeting will be held in the Memorial Hall, Albert-square, on Friday evening, November 4th. Tea at 7 p.m. Subject for discussion, "Apprenticeships and Pharmaceutical Education in the Provinces."

NORWICH.

NORWICH CHEMISTS' ASSISTANTS' ASSOCIATION.

A WELL-ATTENDED meeting of the assistants and apprentices of the chemists in this city was held at the St. John's Rooms, on September 22nd.

Mr. HILL was unanimously voted to the chair.

It was moved by Mr E. NUTHALL, seconded by Mr. T. J. PERKINS, "That, in the opinion of this meeting, it is desirable to form an Association of Chemists' Assistants and Apprentices in Norwich, for the purposes of educational improvement and social intercourse; and that the said association be called 'The Norwich Chemists' Assistants' Association.'"

Moved by Mr. W. BUTLER, seconded by Mr. T. W. RICHARDSON, "That the affairs of the society be conducted by a President, Vice-President, Treasurer, Secretary, and a Committee of five, the President, Vice-President, Treasurer, and Secretary, to be *ex officio* members of the Committee."

Mr. Hill was elected President, Mr. Nuthall Vice-President, Mr. W. Butler, Treasurer, Mr. T. J. Perkins Honorary Secretary, and the following gentlemen to form the Committee:—Mr. Canham, Mr. Ekins, Mr. J. Goodenough, Mr. N. Lincoln, and Mr. P. H. Mason.

Moved by Mr. BUTLER, seconded by Mr. T. J. PERKINS, "That the Committee frame a code of rules, to be submitted for approval to a general meeting of members, to be held within ten days."

After cordial votes of thanks to Messrs. Nuthall and Perkins for the active steps taken by them in promoting the formation of the society, and to Mr. Hill for his able conduct and courtesy in the chair, the meeting dissolved.

The greatest unanimity of feeling prevailed throughout, and at the close of the meeting the Secretary enrolled thirty-six members out of forty-two present.

The second meeting was held in the Society's new rooms on the evening of the 3rd inst., when the rules, as drawn up by the Council, were confirmed by the members.

The kind assurances of support from several of the leading members of the trade in the city, were conveyed to the meeting; also the promise of a cabinet of rare chemicals, etc., from one, and lectures on the several subjects of chemistry, botany, Materia Medica, and the chemistry of the Pharmacopœia, from other gentlemen.

The want of such a medium of social intercourse, combined with professional advantage, has long been felt in Norwich; and from the amount of talent possessed by many of the employers, and the ready and warm reception it has met with on all sides, there is little doubt that the movement will prove a complete success.

Trade Memoranda.

THE Australian Meat Company (Limited), have removed their London office from 52, Gracechurch-street, to 52, Crutched Friars.

Many of the visitors to Liverpool, last month, had the opportunity of looking through Messrs. Evans, Sons, and Co.'s magnificent laboratories and warehouses there. Their old premises having been slightly burned some two years ago, they took the opportunity of remodelling their establishment throughout, and they have now perhaps the most perfectly arranged pharmaceutical works in the country.

The conduct of Mr. Betts towards chemists and others induces us to state the following facts, with regard to the invention of capsules. The first patent was granted to John Thomas Betts on August 11, 1842. This has expired long since, leaving any one a general right to make capsules. On November 30, 1847, a patent was granted to William Betts and another, for colouring the die. On January 13, 1849, a patent was granted to William Betts, for a new metal, made by rolling together tin and lead, so that the tin should cover and conceal the lead. In the ordinary course this patent would have expired on January 13, 1863. The Privy Council, however, in consideration of Mr. Bett's expenses, extended the patent for five years. It therefore expired on the 13th of January, 1868. We have lately received samples of the capsules imported by Messrs. Domeier and Co., of Basinghall-street, and by Mr. F. W. Sehreiber, of Walbrook, from Continental makers; and, considering the facts we have stated above, we can with confidence recommend them to those of our readers who use these elegant finishings for any of their preparations.

Correspondence.

TRADE MARKS AND DESIGNS IN THE UNITED STATES.

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

SIR,—Our cousins across the Atlantic are moving, thanks to the force of example, or (let us rather give them the credit) to a desire of doing as they wish to be done by, viz., treating foreigners on the same footing in respect of the rights of property, both intellectual and material, as their own citizens are treated in every country in Europe.

Until the passing of the Patent Law of 1861, the foreign applicant for a patent in the United States was subjected to

a tax of 300 to 500 dollars, as compared with 30 dollars to an American subject; while, until recently, trade marks and the protection of designs was a privilege exclusively reserved for Americans; and the abuses arising from such an open market cannot even be fairly judged of by the complaints that this exclusion gave rise to, as the evils were not, as may be readily supposed, confined to a pecuniary loss.

The removal of this last ground of complaint, by a law approved July 8, 1870, may be looked upon as a tendency to a more liberal policy, and perhaps as the stepping-stone to reciprocity in other matters than those involved in the recognition of the alien's right to equal protection with the American for the product of his hand and his brain.

By the new American law:—

"A patent for a design may be granted to any person, whether citizen or alien, who by his own industry, genius, efforts, and expense has invented or produced any new and original design for a manufacture, bust, statue, alto-relievo, or bas-relief; any new and original design for the printing of woollen, silk, cotton, or other fabrics; any new and original impression, ornament, pattern, print, or picture, to be printed, painted, cast, or otherwise placed or worked into any article or manufacture, or any new, useful, and original shape or configuration of any article of manufacture, the same not having been known or used by others before his invention or production thereof, or patented or described in any printed publication, upon payment of the duty required by law, and other due proceedings, the same as in cases of inventions or discoveries."

"Any person or firm domiciled in the United States, and any corporation created by the authority of the United States, or of any State or territory thereof, and any person, firm, or corporation, resident of or located in any foreign country which by treaty or convention affords similar privileges to citizens of the United States, and who are entitled to the exclusive use of any trade-mark, or who intend to adopt and use any trade-mark for exclusive use within the United States, may obtain protection for such lawful trade-mark."

I am, Sir,
Your obedient servant,
L. DE FONTAINEMOREAU.

4, South Street, Finsbury, London.

DISAPPOINTED HOPES.

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

SIR,—It was considered when the Pharmacy Act was passed that it would protect and benefit the trade, but what a complete imposition it is as regards the selling of different drugs and poisons. The first section of the Act, as well as several others, is perfectly null and void. It distinctly says it shall be unlawful for anyone to retail poisons unless registered under the Act; again, the 15th section ordains a penalty for selling any poison, and the 17th states that such poisons shall be labelled with the name of the article and the word poison; but all these are infringed upon, especially in this neighbourhood, as ironmongers, grocers, beerhouse-keepers, and, indeed, all parties not being registered chemists and druggists, sell poison without conforming to the words of the Act, I have written to the Secretary of the Society last year, but he has taken no notice of it, therefore it is fair to presume the Act is a nonentity altogether.

I am, Sir,
Yours obediently,
Woburn, Beds, Oct. 11. C. WOODSTOCK.

Notes and Queries

REFERRING to the inquiry for suggestions as to the best method of sending out poisons, Mr. W. J. Bull, of Geelong (Victoria) writes to us, suggesting that two needles crossing each other should be thrust through the cork when the bottle is sent out, thus leaving four sharp points to arrest the attention of the careless. How would customers like this bloodthirsty way of treating them?

Chemist (Darlington). — Milk of roses, miscible with glycerino. Dissolve ʒiss. white soap in Oj. water; beat up in this 6 oz. Jordan almonds. The glycerine should be added to this. Then, in a *warm* mortar, add the mixture thus obtained to ʒij. oil almonds and ʒiss. spermaceti, previously melted. 4 oz. eau de Cologne, or any other perfume, may be added afterwards.

Mr. R. G. Wilton (Runcorn) wishes any chemist to advise him of the best work on perfumery, with especial regard to soaps.

J. Hibbert (St. Helen's.)—Fowne's "Manual of Chemistry" (Churchill), or Roscoe's "Lessons in Elementary Chemistry" (Macmillan).

S. W. (London).—Ferris' Syrup of Chloral Hydrate contains 10 grains in each fluid drachm. The following formula is given by the *Boston Journal of Chemistry*. It might be made more syrupy with advantage.

Hydrate of chloral, . .	ʒ ss.
Chloroform water, . .	ʒ ij.
Syrup orange, or tolu, . .	ʒ iij.
Tincture of ginger, . .	6 to 12 drops.
Water, ...	℥ jss.

The chloroform water is prepared by dissolving half a fluid ounce of chloroform in one gallon of water.

E. M. Watson (Worle).—We have to thank you for your suggestion, which, however, we do not see that we can carry out. Next month, probably, we shall have more to say on the subject of dispensing counters.

E. R. (London).—Plumbe's has the reputation of being a perfectly unadulterated arrowroot.

A Subscriber (Glasgow).—If you will kindly conform to our rule, asking that the real name and address shall be given to us, we will gladly take the necessary trouble to answer your query.

F. H.—The Preliminary Examination papers of the Pharmaceutical Society are not published. You can get from the Secretary, 17, Bloomsbury-square, all the necessary particulars.

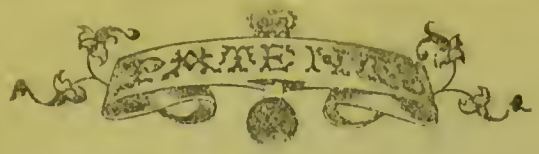
Sponge.—Soak the sponge in warm water, and afterwards dip it in a strong solution of borax.

Mr. John Haynes asks us to tell the trade that he has removed from Croydon to Upper Sydenham.

J. Thompson (Liverpool). — Messrs. Newbery lately informed the trade that, having applied to Somerset House, they were informed that Belloc's Charcoal and Pastilles, and Grimault's Matico Injection, being simple medicines, were not liable to stamp duty.

PHARMACEUTICAL FUN.—*Fun* gives the following interesting anecdote of Dr. B.—A P-istic apothecary (the late Dr. B.) re-O in secret at boing den-oz-ed by a certain ʒ-atist as "as un-9-ously poisonous old slop-seller." Ever methodical in his habits, notwithstanding there were patients at least cwt-ing in his shop, the worthy apothecary went out into the street where, meeting his ʒ-atic reviler, he so cong-tly ex-lb-ed the rudiments of P-ism on the occiput and sinciput of his opponent as to compel him to R-rocate these hostile M-ations on his own be-ss. The ʒ-atist, however, getting q.s. of the worst of it, Co-ed the matter by ren-oz-ing his injurious opinion, and from that time they became fast friends.

We need only explain that P stands for *pugil* (a pinch), and M for maniple (a handful).



[The following list has been compiled expressly for the CHEMIST AND DRUGGIST, by L. de Fontainemoreau Patent Agent, 4, South-street, Finsbury, London; 10, Rue de la Fidélité, Paris; and 33, Rue des Mummes, Brussels.]

Provisional Protection for six months has been granted for the following:—

NO.
1452. J. Baird, of Glasgow. Improvements in treating vegetable oils. Dated 19th May, 1870.
2269. H. Bradley, of Greenwich. An improved mode of treating or preparing clay, lime, chalk, and other matters with carbolic acid to produce a disinfectant, and an insect or vermin repeller, and in apparatus for that purpose. Dated 16th August, 1870.
2281. J. J. Shedlock, of Upper Holloway. Improvements in treating and purifying animal and vegetable fats and oils, and in apparatus connected therewith. Dated 18th August, 1870.
2283. C. Wegg, of Liverpool. Improvements in the manufacture of sulphuric acid. Dated 18th August, 1870.
2298. G. Duncan, G. Hutchin, and S. M. Harrison. Improved means and apparatus for discharging caustic soda from pots. Dated 20th August, 1870.
2312. S. Darby, of Leadenhall-street. Improvements in the manufacture of fluid meat. Dated 22nd August, 1870.
2314. J. N. Jakins, of Regent's-park. Improved apparatus for assisting invalids or bedridden persons in or removing from beds. Dated 23rd August, 1870
2320. J. Lloyd, of Lisbon, Portugal. Improvements in the manufacture of oil, and in the machinery or apparatus to be employed therein. Dated 23rd August, 1870.
2352. J. S. Linford, of Holborn. Improvements in the construction of hydrometers for taking the specific gravity of fluids. Dated 27th August, 1870.
2362. R. Mackay, of Inverness. Improvements in the manufacture of aërated beverages. Dated 29th August, 1870.
2366. J. C. Simonds and R. Donnison, both of Boston, Lincoln. Improvements in apparatus for pressing or extracting oil from seeds. Dated 29th August, 1870.
2399. E. A. Parnell, of Swansea, Glamorgan. Improvements in the manufacture of soda. Dated 2nd September, 1870.
2401. W. R. Lake, of London. An improved process for extracting caustic soda and potash, and the carbonates of the same from their solutions. Dated 2nd September, 1870.
2418. A. McNiel, of Tiverton, and W. Wheaton, of Exeter, Devon. Improvements in the manufacture of salts of ammonia from ammoniacal gas liquor. Dated 6th September, 1870.
2423. E. Edwards, of Lower Clapton. An improved apparatus for inhaling nitrous oxide or other gases. Dated 7th September, 1870.
2435. E. R. Southby, of Shotts, Lanark. Improvements in distilling mineral oils, and in apparatus therefor. Dated 8th September, 1870.
2454. T. Westhorp, of the West India Dock-road. Improvements in the preparation of fibrous materials, to render them suitable for use as lint for surgical purposes. Dated 10th September, 1870.
2458. T. Harvey, of Clement's-lane. Improvements in continuous distilling apparatus for distilling petroleum and other kinds of oils. Dated 12th September, 1870.
2469. H. Deacon, of Widnes, Lancaster. Improvements in apparatus for the manufacture of chlorine. Dated 13th September, 1870.

Letters Patent have been issued for the following:—

668. J. Hargreaves, of Appleton-within-Widnes, and T. Robinson, of Widnes, Lancaster. Improvements in the manufacture and application of chlorine, and in apparatus employed therein. Dated 7th March, 1870.
684. C. H. Williams, of Westbury-on-Severn, Gloucester. Improvements in means for curing skin diseases in animals. Dated 8th March, 1870.
717. J. Wallace, of Belfast, Ireland. Improvements in apparatus for distilling. Dated 10th March, 1870.
787. D. Spill, of Hackney. Improvements in the production of compounds containing xyloidine. Dated 16th March, 1870.
793. F. A. Barrow, of Glasgow. Improvements in apparatus for evaporating, concentrating, and distilling liquids, and in recovering re-agents from oil refiners' and other bye products. Dated 17th March, 1870.
881. J. Townsend, of Glasgow. Improvements in obtaining and applying iron and manganese, protoxides, or their carbonates; in obtaining and applying baryta, strontia, and salts thereof; in obtaining potash, soda, and sulphur; and in utilizing bye or "waste" products arising in the manufactures of chlorine, copper, and alum. Dated 25th March, 1870.
943. J. H. Johnson, of London. Improvements in the preparation of soluble phosphates of lime. Dated 31st March, 1870.
944. R. Scott and W. McIvor, both of Addiewell, Midlothian. Improvements in the treatment of mineral oils. Dated 31st March, 1870.
986. A. T. Auquetil, of Paris. An improved treatment and application of oleic and stearic acids, for protecting metallic surfaces from oxidation, and preserving wood and other materials. Dated 4th April, 1870.
2049. G. Phillips, of Tufnell-park-road. Improvements in preparing charcoal for decolorizing syrups and other solutions. Dated 20th July, 1870.
2101. W. R. Lake, of London. An improved method of manufacturing solid collodion, and moulding the same into articles of any desired form. Dated 26th July, 1870.

Specifications published during the month. Postage 1d. each extra:—
1870.
102. A. Clark and A. Van Winkle. Machine for bottling soda water, etc. 10d.
108. J. Greenshields. Obtaining oil from carbonaceous substances, and utilizing residues. 6d.
135. T. Welton. Stoppers for jars, carboys, etc. 6d.
153. J. H. Johnson. Acid tars. 8d.
204. W. T. Walte. Filtering saccharine solutions, etc. 10d.
219. F. Kohn. Extracting juices from plants, etc. 1s. 4d.
291. C. W. Fuller Bottles for aërated liquids, etc. 6d.
305. W. R. Lake. Production and application of carbonic acid. 1s. 6d.
430. A. Fryer. Preserving animal and vegetable substances. 4d.
450. I. Mason. Apparatus for measuring oil, etc. 8d.
498. J. H. Johnson. Obtaining oxygen gas. 4d.

THE war still drags along, and day by day we are supplied with a fresh budget of sickening and horrible details of massacre, ruin, and desolation. Such calamities as follow in the track of every war have never been exceeded in bitterness in the recorded history of any in modern times; and should it last till the winter, as in the present temper of the combatants it well may do, the sufferings of the innocent will be vastly intensified. If the art of diplomacy had been worth its name, surely something might have been done to stay the continuance of this inhuman plague.

Trade, of course, is affected by this war. Some manufacturers are benefited, some injured. On the whole, those branches which we report are, perhaps, as little concerned in the effects of it as any. But business generally is dull, buyers showing little inclination to speculate.

Drug sales took place on the 13th inst. Some Bengal Red Bark, grown in the Royal Botanic Gardens, at Darjeeling, sold, bold quill at 1s. 9d. Barbados Aloes met with a good demand, but Cape were slow of sale. An unusually large quantity of Bombay Senna was brought forward and met with a good demand, 216 bales being sold, at firm rates, out of 248 offered. Some Opium was offered, but none sold, present prices not being tempting enough to holders. Castor Oil was but little wanted, but prices did not vary. Assafœtida was bought readily, as was also good qualities of Myrrh, but other gums were dull.

The quarterly Indigo sales have been proceeding this week, and prices have receded from those quoted in July from 3d. to 1s. per lb. Kurpahs maintained their value, and in some cases Bengals, but Oudes have been very heavy of sale. In all 12,941 chests have been offered.

Chemical reports are encouraging. There has been a good inquiry for home consumption, but buyers do not operate much beyond supplying present wants. A few contracts have been concluded, generally speaking at above last year's figures, and but faint hopes are held out of any concession being granted by producers. Bleaching powder closes stiff, and ash is, if anything, firmer, while caustic soda for forward delivery is well inquired after. The orders from Canada are numerous, and the trade with America and foreign ports continues active. The Board of Trade Returns recently issued show that the war has deprived us of the consumption of two countries, each of which has hitherto purchased large quantities of chemicals. There is no return given for Prussia, which took over 1,400 tons in the same month last year, while France, instead of purchasing 800 tons, only takes 360, with every probability of its getting still less. On the other hand, there is an improvement in Russian orders, which embrace upwards of 2,500 tons, against 683 of the corresponding period of last year. The trade with the United States appears to steadily increase, being 2,000 tons more than the previous month, and 200 tons above the same month of 1869. The quantity of drugs and other chemical products sent out of the country does not vary much from other months, but it is slightly less than July.

Oils are flat all round. Olive has declined again, so have most of the fish oils, and linseed is on the turn downwards. Petroleum is in moderate demand.

Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mincing lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.]

CHEMICALS.	1870.				1869.			
ACIDS—	s.	d.		s. d.	s.	d.		s. d.
Acetic .....per lb.	0	4	to	0 0	0	4	to	0 0
Citric .....per lb.	2	4½	..	2 5	2	4	..	2 4½
Hydrochlor. ....per cwt	4	0	..	7 0	4	0	..	7 0
Nitric ..... per lb.	0	5	..	0 5½	0	5	..	0 5½
Oxalic ..... „	0	8	..	0 0	0	7½	..	0 0
Sulphuric ..... „	0	0¾	..	0 1	0	0¾	..	0 1
Tartaric crystal .. „	1	3½	..	1 3¾	1	2	..	0 0
powdered „	1	4	..	0 0	1	2½	..	1 3
ANTIMONY ore.....per ton	360	0	..	400 0	250	0	..	320 0
crude ..per cwt	48	0	..	0 0	32	0	..	0 0
regulus.. „	70	0	..	0 0	51	0	..	0 0
star .... „	0	0	..	0 0	50	0	..	51 0
ARSENIC, lump..... „	15	6	..	16 0	16	0	..	16 6
powder.... „	7	3	..	7 6	7	3	..	7 6
BRIMSTONE, rough ..per ton	160	0	..	0 0	165	0	..	0 0
roll ....per cwt	11	0	..	0 0	11	0	..	0 0
flour.... „	12	0	..	13 0	11	0	..	0 0
IODINE, dry .....per oz.	0	9	..	0 9½	0	9¾	..	0 10
IVORY BLACK, dry..per cwt.	0	0	..	0 0	0	0	..	0 0
MAGNESIA, calcined..per lb.	1	2	..	0 0	0	0	..	0 0
MERCURY..... .. per bottle	168	0	..	0 0	137	0	..	138 0
MINIUM, red .....per cwt.	21	0	..	0 0	20	9	..	21 0
orange .... „	31	6	..	32 6	31	6	..	32 6
PRECIPITATE, red ....per lb.	2	11	..	0 0	2	6	..	0 0
white .. „	2	10	..	0 0	2	5	..	0 0
PRUSSIAN BLUE ..... „	0	0	..	0 0	0	0	..	0 0
SALTS—								
Alum .....per ton	145	0	..	150 0	145	0	..	150 0
powder .... „	160	0	..	165 0	165	0	..	170 0
Ammonia:								
Carbonate .....per lb.	0	5¾	..	0 6	0	5¾	..	0 6
Hydrochlorate, crude, white..... per ton	480	0	..	560 0	480	0	..	560 0
British (*see* Sal Ammoniac)								
Sulphate .....per ton	320	0	..	325 0	335	0	..	340 0
Argol, Cape .....per cwt	55	0	..	73 0	65	0	..	78 0
France .... „	40	0	..	50 0	45	0	..	58 0
Oporto, red „	22	0	..	24 0	22	0	..	24 0
Sicily „	0	0	..	0 0	32	0	..	40 0
Naples, white „	0	0	..	0 0	55	0	..	65 0
Florence.white	0	0	..	0 0	0	0	..	0 0
„ red „	0	0	..	0 0	0	0	..	0 0
Ashes (*see* Potash and Soda)								
Bleaching powd ..per cwt.	9	3	..	0 0	8	9	..	9 0
Borax, crude .... „	25	0	..	40 0	25	0	..	35 0
(Tincal) .. „	45	0	..	60 0	45	0	..	60 0
British refnd. „	68	0	..	70 0	69	0	..	70 0
Calomel .....per lb.	2	10	..	0 0	2	5	..	0 0
Copper.								
Sulphate .....per cwt.	23	0	..	24 0	23	6	..	24 0
Copperas, green ..per ton	50	0	..	60 0	52	6	..	60 0
CorrosiveSublimate..p.lb.	2	3	..	0 0	1	11	..	0 0
Cr. Tartar, French, p. cwt.	88	0	..	90 0	82	0	..	0 0
Venetian grey „	90	0	..	96 0	0	0	..	0 0
brown „	0	0	..	0 0	65	0	..	74 0
Epsom Salts ...per cwt.	6	0	..	7 0	7	6	..	8 0
Glauber Salts .... „	4	6	..	6 0	4	6	..	6 0
Lime:								
Acetate, white, per cwt.	12	0	..	23 0	12	6	..	23 0
Magnesia: Carbonate „	42	6	..	0 0	42	6	..	0 0
Potash:								
Bichromate ....per lb.	0	5	..	0 5½	0	5	..	0 0
Carbonate:								
Potashes, Canada, 1st sort .....per cwt.	33	0	..	34 0	0	0	..	0 0
Pearlashes, Canada, 1st sort .....per cwt.	44	6	..	0 0	0	0	..	0 0
Chlorate .....per lb.	0	11	..	0 0	0	10¾	..	0 11
Prussiate .... per lb.	1	0	..	0 0	0	0	..	0 0
red.... „	1	9½	..	1 10	1	9½	..	1 10
Tartrate (*see* Argol and Cream of Tartar)								
Potassium:								
Chloride .....per cwt.	14	0	..	0 0	8	0	..	0 0
Iodide..... per lb.	12	0	..	0 0	12	0	..	0 0
Quinine:								
Sulphate, British, in bottles ..... per oz.	6	3	..	0 0	5	9	..	0 0
Sulphate, French „	5	11	..	6 0	5	5	.	0 0
Sal Acetos .....per lb.	0	10	..	0 0	0	10	..	0 0
Sal Ammoniac, Brit. cwt.	41	0	..	42 0	38	0	..	40 0
Saltpetre:								
Bengal, 6 per cent. or under .....per cwt.	29	0	..	30 0	22	0	..	22 6
Bengal, over 6 per cent. per cwt.	27	0	..	28 6	21	3	..	21 9
Madras..... „	0	0	..	0 0	0	0	..	0 0
Bomb & Kurrachee p.ct.	0	0	..	0 0	0	0	..	0 0
European..... „	0	0	..	0 0	0	0	..	0 0
British, refined „	31	0	..	0 0	25	6	..	26 6
Soda: Bicarbonate, p.cwt.	10	6	..	0	9	9	..	0 0
Carbonate:								
Soda Ash.... perdeg.	0	1¾	..	2	0	1¾	..	0 1⅞
Soda Crystals per ton	77	6	..	0	75	0	..	77 6
Hyposulphite..per cwt.	18	0	to	0	16	0	to	18 0

	1870.				1869.			
Soda:	s.	d.		s. d.	s.	d.		s. d.
Nitrate .....per cwt.	15	6	..	15 9	16	0	..	17 0
SUGAR OF LEAD, White, cwt.	39	0	..	40 0	40	0	..	0 0
Brown ..... „	20	0	..	28 0	29	0	..	30 0
SULPHUR (*see* Brimstone								
VERDIGRIS ..... per lb.	1	0	..	1 2	1	0		1 2
VERMILION, English..per lb.	2	7	..	2 9	2	6	..	3 0
China.... „	3	0	..	3 2	2	9	..	0 0
DRUGS.								
ALOES, Hepatic....per cwt.	60	0	..	160 0	80	0	..	180 0
Socotrine .. „	100	0	..	220 0	120	0	..	230 0
Cape, good.. „	23	0	..	28 0	28	0	..	31 0
Inferior „	16	0	..	22 0	19	0	..	28 0
Barbadoes „	70	0	..	200 0	90	0	..	220 0
AMBERGRIS, grey..... oz.	25	0	..	30 0	27	6	..	30 0
BALSAMS—								
Canada .....per lb.	1	0	..	0 0	1	2	..	0 0
Capivi ..... „	1	6	..	1 7	1	9	..	1 10
Peru ..... „	9	0	..	9 3	11	6	..	11 9
Tolu ..... „	2	3	..	2 4	2	2	..	2 3
BARKS—								
Canella alba ....per cwt.	18	0	..	32 0	24	0	..	36 0
Cascarilla.. .... „	18	0	..	32 0	26	0	..	36 0
Peru, crown & grey per lb.	0	10	..	2 5	0	9	..	2 3
Calisaya, flat „	3	3	..	3 9	3	3	..	3 8
quill „	3	2	..	3 8	3	0	..	3 7
Carthagena „	1	0	..	1 9	0	9	..	1 7
Pitayo .... „	0	10	..	1 6	0	6	..	1 5
Red ..... „	1	6	..	5 6	2	0	..	7 0
Bucho Leaves ..... „	0	3	..	0 6	0	3½	..	0 7
CAMPHOR, China.. per cwt.	72	6	..	75 0	90	0	..	92 6
Japan „	75	0	..	9 0	95	0	..	0 0
Refin Eng. per lb.	1	1½	..	1 2	1	5	..	0 0
CANTHARINES ..... „	3	11	..	0 0	2	10	..	3 0
CHAMOMILE FLOWERS p. cwt	40	0	..	72 6	50	0	..	80 0
CASTOREUM ..... per lb.	3	0	..	30 0	4	0	..	32 0
DRAGON'S BLOOD, lump „	90	0	..	210 0	100	0	..	180 0
FRUITS AND SEEDS (*see also* Seeds *and* Spices.								
Anise, China Star pr cwt.	110	0	..	117	105	0	..	110 0
German, &c. „	25	0	..	40 0	25	0	..	38 0
Beans, Tonquin .. per lb.	0	9	..	1 4	1	0	..	1 6
Cardamoms, Malabar								
good „	9	6	..	10 6	7	6	..	7 9
inferior „	7	6	..	9 0	5	9	..	7 0
Madras „	5	6	..	9 0	4	9	..	7 9
Ceylon „	2	8	..	3 3	2	8	..	3 2
Cassia Fistula.. per cwt.	14	0	..	32 0	20	0	..	40 0
Castor Seeds .. „	10	0	..	12 0	11	0	..	13 0
Cocculus Indicus „	12	6	..	13 0	21	0	..	23 0
Colocynth, apple.. per lb.	0	4	..	0 8	0	5	..	0 9
Croton Seeds .. per cwt.	85	0	..	90 0	46	0	..	53 0
Cubebs ..... „	27	6	..	32 6	38	0	..	42 0
Cummin..... „	50	0	..	60 0	55	0	..	65 0
Dividivi ..... „	12	0	..	14 0	10	6	..	12 6
Fenugreek..... „	12	0	..	15 0	10	0	..	14 0
Guinea Grains .. „	24	0	..	28 0	26	0	..	36 0
Juniper Berries „	10	6	..	0 0	7	0	..	8 0
Myrobalans .... „	7	6	..	15 6	8	0	..	15 6
Nux Vomica.... „	10	0	..	13 0	13	0	..	16 6
Tamarinds, East India „	10	0	..	16 0	11	0	..	18 0
West India, new „	10	0	..	17 0	12	0	..	22 0
Vanilla, large .... per lb.	32	0	..	37 0	22	0	..	25 0
inferior „	25	0	..	30 0	10	0	..	20 0
Wormseed per cwt.	35	0	..	0 0	25	0	..	30 0
GINGER, Preserved, in bond (duty 1d. per lb.) per lb.	0	6	..	0 8	0	6	..	0 7
GUMS (*see separate list*)								
HONEY, Chili .... „	32	0	..	46 6	28	0	..	36 0
Cuba .... „	22	0	..	36 0	21	0	..	36 0
Jamaica.. „	31	0	..	52 0	28	0	..	45 0
IPECACUANHA .... „	4	6	..	5 0	5	3	..	5 9
ISINOLASS, Brazil.. „	3	1	..	4 6	2	8	..	4 8
Tongue sort „	4	0	..	4 8	3	2	..	5 1
East India „	1	8	..	5 6	2	0	..	4 4
West India „	4	0	..	5 6	4	0	..	4 7
Russ. long staple	5	0	..	8 0	5	0	..	8 0
„ leaf „	3	0	..	5 6	3	0	..	5 9
„ Simovia „	1	6	..	2 6	1	6	..	2 6½
JALAP, good ..... „	1	8	..	3 0	3	2	..	4 0
infer. & stems „	0	0	..	1 6	0	6	..	3 0
LEMON JUICE ... per degree	0	1	..	0 1½	0	1	..	0 1
LIQUORICE, Spanish per cwt.	0	0	..	0 0	63	0	..	68 0
Italian „	40	0	..	60 0	48	0	..	67 0
MANNA, flaky .... per lb.	2	6	..	3 4	4	0	..	4 9
small..... „	1	9	..	0 0	2	0	..	2 6
MUSK..... per oz.	16	6	..	32 0	16	0	..	33 0
OILS (*see also separate List*)								
Almond, expressed per lb.	1	0	..	0 0	1	1	..	0 0
Castor, 1st palo .... „	0	4¾	..	0 5	0	5¼	..	0
second .... „	0	4½	..	0 4½	0	4½	..	0
infer. & dark „	0	4	..	0 4½	0	4½	..	0 0
Bombay (in casks)	0	4	..	0 4½	0	4½	..	0 0
Cod Liver .....per gall.	5	0	..	6 6	5	6	..	7 0
Croton.....per oz.	0	3½	..	0 4½	0		..	0 4
Essential Oils:								
Almond .....per lb.	42	0	..	0 0	42	6	..	0 0
Anise-seed .....per lb.	0	0	..	0 8	9	0	..	0 0
Bay .....per cwt.	65	0	..	70 0	65	0	..	70 0
Bergamot .....per lb.	8	0	..	15 0	8	0	..	15 0
Cajeput, (in bond) per oz.	0	2½	..	0 3	0	1¾	..	0 2
Caraway .....per lb.	5	6	..	6 3	5	3	..	5 9
Cassia ..... „	4	6	..	0 0	5	0	..	5 3
Cinnamon .....per oz.	1	0	..	4 6	1	0	..	4 6
Cinnamon-leaf .. „	0	2	..	0 6	0	4		

	1870.		1869.	
Essential Oils, *continued*:—	s. d.	s. d	s. d.	s. d.
Citronelle .....per oz.	0 2 ..	0 0	0 2½ ..	0 0
fino.... ,,	0 2½ ..	0	0 3 ..	0 3½
Clove.....per lb.	2 6 ..	0 0	2 7 ..	0 0
Juniper ..... ,,	1 9 ..	2 0	1 9 ..	2 0
Lavender..... ,,	3 0 ..	4 3	3 0 ..	4 3
Lemon..... ,,	5 0 ..	9 6	4 6 ..	8 0
Lemongrass ....per oz.	0 2⅝ ..	0 3	0 4½ ..	0 4¾
Neroli ..... ,,	0 5 ..	0 6	0 5 ..	0 6
Nutmeg ..... ,,	0 4 ..	0 7½	0 4 ..	0 8
Orango.....per lb.	5 0 ..	7 0	5 0 ..	7 0
Otto of Rosos....per oz.	13 0 ..	20 0	13 0 ..	21 0
Patchouli ..... ,,	6 0 ..	0 0	6 0 ..	0 0
Peppermint:				
American ....per lb.	15 0 ..	15 6	16 0 ..	17 0
English ..... ,,	36 0 ..	38 0	32 0 ..	42 0
Rosemary ..... ,,	1 9 ..	2 0	1 9 ..	2 0
Sassafras..... ,,	3 0 ..	0 0	4 0 ..	4 6
Spearmint ..... ,,	4 0 ..	16 0	4 0 ..	18 0
Thyme..... ,,	1 10 ..	2 0	1 10 ..	2 0
Mace, expressed .. per oz.	0 1 ..	0 2½	0 1 ..	0 2½
Opium, Turkey..... per lb.	26 0 ..	30 0	21 6 ..	23 6
inferior ..... ,,	18 0 ..	25 0	16 0 ..	21 0
Quassia(bitter wood) per ton	60 0 ..	70 0	160 0 ..	170 0
Rhubarb, China, good and				
fine .....per lb.	4 3 ..	8 0	4 9 ..	9 0
Good, mid. to ord. ,,	0 7 ..	4 0	0 9 ..	4 6
Dutch trimmed ,,	9 6 ..	10 0	10 0 ..	0 0
Russian ..... ,,	0 0 ..	0 0	0 0 ..	0 0
ROOTS—Calumba..per cwt.	22 6 ..	40 0	40 0 ..	48 0
China ..... ,,	23 0 ..	35 0	27 0 ..	35 0
Galangal ..... ,,	16 0 ..	18 0	15 0 ..	20 0
Gentian ..... ,,	25 0 ..	26 0	19 0 ..	20 0
Helleboro ..... ,,	22 0 ..	30 0	22 0 ..	30 0
Orris..... ,,	50 0 ..	52 0	38 0 ..	44 0
Pellitory ..... ,,	58 0 ..	60 0	58 0 ..	60 0
Pink.....per lb.	0 7 ..	0 10	0 7 ..	0 10
Rhatany ..... ,,	0 8 ..	0 10	0 5 ..	0 10
Seneka..... ,,	2 10 ..	3 0	1 6 ..	0 0
Snake ..... ,,	1 0 ..	0 0	1 0 ..	0 0
Saffron, Spanish .. ,,	52 0 ..	0 0	30 0 ..	38 0
Salep .....per cwt.	110 0 ..	0 0	110 0 ..	0 0
Sarsaparilla, Lima per lb.	0 6 ..	0 7½	0 7 ..	0 8
Para..... ,,	1 0 ..	1 3	1 0 ..	1 3
Honduras ..... ,,	1 1 ..	1 6½	1 2 ..	1 6
Jamaica ..... ,,	1 9 ..	3 2	1 9 ..	2 6
Sassafras .....per cwt.	0 0 ..	0 0	13 0 ..	14 0
Scammony, Virgin ..per lb.	28 0 ..	32 0	28 0 ..	34 0
second & ordinary ,,	10 0 ..	23 0	10 0 ..	23 0
Senna, Bombay .... ,,	0 3½ ..	0 6	0 3 ..	0 5½
Tinnivelly ..... ,,	0 3¼ ..	1 4	0 2 ..	0 11
Alexandria..... ,,	0 4½ ..	1 7	0 10 ..	1 8
Spermaceti,refined.. ,,	1 6 ..	1 7	1 4 ..	1 5
American ..... ,,	1 4 ..	0 0	1 4 ..	0 0
Squill..... ,,	0 1 ..	0 1¾	0 1½ ..	0 2½
GUMS.				
Ammoniaci drop ..per cwt.	60 0 ..	90 0	210 0 ..	280 0
lump .. ,,	45 0 ..	65 0	120 0 ..	200 0
Animi, fine washed ,,	290 0 ..	340 0	290 0 ..	340 0
bold scraped ,,	220 0 ..	280 0	200 0 ..	290 0
sorts ..... ,,	100 0 ..	200 0	100 0 ..	190 0
dark ..... ,,	75 0 ..	100 0	80 0 ..	110 0
Arabic, E. l., fine				
pale picked .. ,,	62 0 ..	70 0	78 0 ..	82 0
srts, gd. to fin ,,	48 0 ..	60 0	65 0 ..	76 0
garblings.. ,,	30 0 ..	50 0	40 0 ..	60 0
Turkey, pick. gd to fin. ,,	160 0 ..	200 0	170 0 ..	220 0
second & inf. ,,	85 0 ..	155 0	90 0 ..	160 0
in sorts .. ,,	70 0 ..	90 0	70 0 ..	100 0
Gedda.... ,,	38 0 ..	44 0	38 0 ..	45 0
Barbary, white .. ,,	45 0 ..	65 0	83 0 ..	85 0
brown .. ,,	60 0 ..	0 0	70 0 ..	81 0
Australian ..... ,,	20 0 ..	42 0	26 0 ..	52 0
Assafœtida,com.to gd ,,	30 0 ..	85 0	40 0 ..	95 0
Benjamin, 1st qual. ,,	280 0 ..	440 0	240 0 ..	500 0
2nd ,, ,,	140 0 ..	200 0	140 0 ..	220 0
3rd ,, ,,	50 0 ..	90 0	50 0 ..	120 0
Copal, Angola red ,,	90 0 ..	100 0	110 0 ..	120 6
Benguela .. ,,	90 0 ..	100 0	100 0 ..	110 0
Sierra Leono..per lb.	0 4 ..	1 2½	0 5 ..	1 4
Manilla ....per cwt.	30 0 ..	50 0	32 0 ..	52 0
Dammar, pale .... ,,	50 0 ..	55 0	95 0 ..	100 0
Euphorbium ..... ,,	13 0 ..	14 0	15 0 ..	16 0
Galbanum ..... ,,	160 0 ..	260 0	160 0 ..	240 0
Gamboge,pckd.pipo ,,	240 0 ..	265 0	320 0 ..	360 0
Guaiacum .....per lb.	0 9 ..	2 4	0 8 ..	1 5
Kino.....per cwt.	60 0 ..	140 0	65 0 ..	130 0
Kowrie, rough.... ,,	30 0 ..	40 0	47 0 ..	60 0
scraped .. ,,	42 6 ..	100 0	63 0 ..	112 6
Mastic, picked.....per lb.	7 6 ..	8 0	5 0 ..	5 6
Myrrh, gd. & fino per cwt.	150 0 ..	200 0	180 0 ..	250 0
sorts.....	80 0 ..	140 0	90 0 ..	170 0
Olibanum, p. sorts	68 0 ..	74 0	80 0 ..	85 0
amber & ylw.	58 0 ..	66 0	70 0 ..	78 0
garblings.... ,,	18 0 ..	40 0	25 0 ..	46 0
Senegal .....per cwt.	77 6 ..	90 0	88 0 ..	95 0
Sandarac ..... ,,	65 0 ..	97 0	70 0 ..	90 0
Thus..... ,,	13 0 ..	14 0	13 0 ..	14 0
Tragacanth, leaf.. ,,	220 0 ..	380 0	240 0 ..	400 0
in sorts ,,	115 0 ..	210 0	115 0 ..	210 0
OILS.				
Seal, pale.....per tun	£36 0 ..	0 0	£39 0 ..	0 0
yellow to tinged ,,	33 0 ..	35 10	36 0 ..	38 0
brown..... ,,	30 0 ..	32 0	33 0 ..	34 0
Sperm, body . .... ,,	80 0 ..	0 0	92 0 ..	93 0
headmatter ,	0 0 ..	0 0	0 0 ..	0 0

	1870.		1869.	
Oils, *continued*:—	£ s.	£ s.	£ s.	£ s.
Cod..... per tun	38 0 ..	38 10	43 0 ..	0 0
Whale, South Sea, pale ,,	36 0 ..	0 0	39 0 ..	0 0
yellow ,,	35 10 ..	0 0	38 0 ..	0 0
brown ,,	34 0 ..	0 0	34 0 ..	35 0
East India, Fish ,,	32 0 ..	33 0	32 0 ..	0 0
Olive, Galipoli ..... ,,	48 0 ..	49 0	58 0 ..	0 0
Trieste ..... ,,	47 0 ..	0 0	57 0 ..	0 0
Lovant ..... ,,	46 0 ..	0 0	52 10 ..	0 0
Mogador..... ,,	45 10 ..	46 0	51 10 ..	0 0
Spanish ..... ,,	47 0 ..	47 10	55 10 ..	56 10
Sicily ..... ,,	47 0 ..	0 0	54 0 ..	0 0
Cocoanut, Cochin.. per ton	43 10 ..	44 0	44 0 ..	0 0
Ceylon.. ,,	37 10 ..	38 0	42 0 ..	0 0
Sydney ,,	32 0 ..	37 10	36 0 ..	41 0
Ground Nut and Ginoelly:				
Bombay	0 0 ..	0 0	0 0 ..	0 0
Madras.....	43 0 ..	44 0	40 0 ..	41 0
Palm, fine	40 0 ..	40 0	42 10 ..	43 0
Linseed	30 15 ..	0 0	29 5 ..	29 10
Rapeseed, English, pale ..	43 10 ..	0 0	41 10 ..	0 0
brown.....	41 0 ..	41 5	39 0 ..	39 5
Foreign pale....	46 0 ..	46 10	44 0 ..	44 10
brown.....	42 0 ..	0 0	39 5 ..	0 0
Cottonseed	29 0 ..	34 10	31 0 ..	36 0
Lard.....	70 0 ..	72 0	72 0 ..	73 0
Tallow	35 0 ..	0 0	35 0 ..	0 0
Turpentine, American, cks.	27 6 ..	0 0	28 0 ..	0 0
Petroleum, Crude	0 0 ..	0 0	14 0 .	0 0
	s. d.	s d.	s. d.	s. d.
refined, per gall.	1 5¾ ..	1 6	1 7¼ ..	0 0
Spirit ,,	1 0 ..	1 1	0 9½ ..	0 0
SEEDS.	s. d.	s. d	s. d.	s. d.
Canary .....per qr.	48 0 ..	60 0	62 0 ..	72 0
Caraway, English per cwt.	40 0 ..	45 0	48 0 ..	52 0
German, &c.....	25 0 ..	34 0	28 0 ..	43 0
Coriander	0 0 ..	0 0	20 0 ..	21 0
Hemp .....per qr.	44 0 ..	48 0	42 0 ..	44 0
Linseed, English per qr...	0 0 ..	0 0	0 0 ..	0 0
Black Sea & Azof	57 6 ..	0 0	58 0 ..	0 0
Calcutta ,,	62 0 ..	62 6	62 6 ..	0 0
Bombay ,,	63 0 ..	0 0	63 6 ..	0 0
St. Petrsbrg. ,,	54 0 ..	55 0	54 0 ..	57 6
Mustard, brown..per bshl.	0 0 ..	0 0	15 0 ..	17 0
white.. ,,	9 0 ..	9 6	11 6 ..	12 6
Poppy, East Indian per qr.	52 0 ..	0 0	56 9 ..	57 0
SPICES.				
Cassia Lignea ....per cwt.	98 0 ..	112 0	128 0 ..	136 0
Vera ..... ,,	47 0 ..	82 0	45 0 ..	85 6
Buds..... ,,	155 0 ..	175 0	150 0 ..	180 0
Cinnamon, Ceylon,				
1st quality ....per lb.	1 8 ..	3 3	2 5 ..	3 9
2nd do..... ,,	1 3 ..	3 2	1 10 ..	3 7
3rd do..... ,,	1 1 ..	2 11	1 7 ..	3 5
Tellicherry ..... ,,	0 10 ..	0 0	0 0 ..	0 0
Cloves, Penang.... ,,	1 0 ..	1 1¾	0 10½ ..	1 0
Amboyna..... ,,	0 5 ..	0 6½	0 4½ ..	0 5½
Zanzibar ..... ,,	0 3 ..	0 0	0 2⅝ ..	0 3
Ginger, Jam , fine per cwt.	80 0 ..	0 0	110 0 ..	200 0
Ord. to good .. ,,	32 0 ..	77 0	37 0 ..	100 0
African..... ,,	26 0 ..	29 6	24 6 ..	25 0
Bengal ..... ,,	26 6 ..	26 6	26 0 ..	27 0
Malabar ..... ,,	23 6 ..	27 0	0 0 ..	0 0
Cochin ..... ,,	30 0 ..	110 0	38 0 ..	120 0
Pepper, Blk, Malabar, per lb.	0 5¼ ..	0 6	0 5 ..	0 5¾
White, Tellicherry ,,	0 9 ..	1 5	0 9 ..	1 5
Cayenne ..... ,,	0 8 ..	1 1½	0 7 ..	0 11¾
Mace, 1st quality ..per lb.	3 1 ..	3 9	3 6 ..	4 2
2nd and inferior.. ,,	2 5 ..	3 0	2 6 ..	2 4
Nutmegs, 78 to 60 to lb.	2 8 ..	4 4	2 10 ..	4 4
90 to 80 ,,	2 3 ..	2 7	2 6 ..	2 9
132 to 95 ,,	1 7 ..	2 2	1 8 ..	2 2
VARIOUS PRODUCTS.				
COCHINEAL—				
Honduras, black ..per lb.	2 6 ..	3 9	2 9 ..	3 10
,, silver .. ,,	2 5 ..	2 10	2 7 ..	2 1
,, pasty .. ,,	1 9 ..	2 3	2 2 ..	2 6
Mexican, black .... ,,	2 6 ..	2 9	2 9 ..	3 0
,, silver .... ,,	2 3 ..	2 4	2 7 ..	2 8
Teneriffe, black....	2 6 ..	4 0	2 9 ..	4 1
,, silver.... ,,	2 5 ..	2 7	2 7 ..	2 9
PUMICE STONE ..per ton	120 0 ..	160 0	120 0 ..	160 0
SOAP, Castile ....per cwt.	35 0 ..	0 0	35 0 ..	0 0
SPONGE, Turk. fin pkd pr lb.	12 0 ..	16 0	12 0 ..	16 0
Fair to good .. ,,	4 0 ..	11 0	4 0 ..	11 0
Ordinary..... ,,	1 0 ..	3 6	1 0 ..	3 6
Bahama..... ,,	0 6 ..	2 6	0 6 ..	2 6
TERRA JAPONICA—				
Gambier .. per cwt.	16 0 ..	16 6	17 0 ..	17 6
Free cubes ,,	17 0 ..	19 6	19 6 ..	22 0
Cutch ..... ,,	18 0 ..	20 6	24 0 ..	25 0
WOOD, Dye, Bar ..per ton	£3 15 ..	£4 0	£4 0 ..	£4 10
Brazil ..... ,,	0 0 ..	0 0	0 0 ..	0 0
Braziletto ..... ,,	0 0 ..	0 0	0 0 ..	0 0
Cam ..... ,,	17 0 ..	24 0	26 0 ..	32 0
Fustic, Cuba..... ,,	7 10 ..	8 10	7 15 ..	8 10
Jamaica ..... ,,	4 0 ..	5 10	4 12/6..	5 15
Savanilla..... ,,	0 0 ..	0 0	0 0 ..	0 0
Logwood, Campeachy ,,	9 10 ..	10 0	10 0 ..	10 10
Honduras ..... ,,	5 10 ..	6 10	6 10 ..	0 0
St. Domingo .... ,,	5 10 ..	6 10	6 0 ..	6 10
Jamaica ..... ,,	3 7/6 ..	3 15	6 2/6..	6 5
Lima, first plio.... ,,	10 0 ..	11 0	14 10 ..	15 0
Red Sanders..... ,,	6 7/6 ..	6 10	8 0 ..	0 0
Sapan, Bimas, &c. ,,	7 0 ..	0 9	0 ..	9 10